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THE UNIVERSITY OF ALBERTA
AN INVESTIGATION OF LISTENERS' RESPONSES TO MUSIC
AS INDICATED ON A SEMANTIC DIFFERENTIAL TEST

by

AGNES ELAINE HEREFORD



A THESIS
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FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "An Investigation of Listeners' Responses to Music as Indicated on a Semantic Differential Test," submitted by Agnes Elaine Hereford in partial fulfilment of the requirements for the degree of Master of Education.

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ABSTRACT

This study attempted to develop a semantic differential test which could be used to determine the factor structure of the responses made by groups of listeners to different kinds of music. One hundred and thirty-six individuals, each of whom was either a student or a professor at the University of Alberta, participated in the study. These subjects represented the following three categories of musical background: little or no musical background (Group A), a moderate musical background (Group B), and an extensive musical background (Group C). They listened to fourteen excerpts of orchestral music, eight of which were classical music and six of which were popular music. While listening to an excerpt, each subject was asked to indicate his responses to the music on a semantic differential test constructed by the investigator. This test was administered in October, 1967. Seventy subjects volunteered to re-take the test in November, 1967.

Two statistical techniques, factor analysis and factor matching, were used to test the four hypotheses which had been formulated. A correlation coefficient for the responses of the seventy subjects who took the test twice was calculated to estimate the test's reliability.

When the prediction that there was no relationship between an individual's musical background and his semantic factor responses to

selected excerpts of music was tested, it was found that the factor structures of the listeners having the most dissimilar musical backgrounds displayed the greatest degree of agreement. The factor structure for Group B's responses stood out as being different. Comparing the factor structures of the three groups for classical music and for popular music did not alter these relationships.

It was found that there was a relationship between an individual's musical background and his semantic factor responses to selected excerpts of classical music and popular music. Only the responses of the Group A listeners seemed to vary according to music's classical or popular nature. The listeners in the other two groups approached these two types of music in much the same way.

Comparing the responses made by the subjects to familiar and strange excerpts resulted in finding no relationship between an individual's degree of familiarity with musical selections and his responses to them.

It was found that there was a relationship between an individual's musical background and his semantic factor responses to excerpts of familiar and strange music. Only the responses of the Group B listeners failed to vary according to the music's familiarity or strangeness. In the other two groups the listener's responses seemed to be influenced by this factor.

ACKNOWLEDGEMENTS

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CHAPTER I

THE NATURE OF THE STUDY

INTRODUCTION TO AND NEED FOR THE STUDY

Music is an aural art: it exists only as it is heard. Listening is therefore the most basic of all types of musical activity.¹ For some time music educators have subscribed to the principal that "the development of the ability to listen with increased attentiveness and to perceive the organized patterns of sound by ear is the underlying basis for all musical growth."² It is therefore surprising that school music programs have thus far given this aspect so little attention.³ This neglect of the training of listeners appears even more extraordinary in view of two important trends in our society.

¹Lillian L. Baldwin, "Listening," Music Education, The Thirty-Fifth Yearbook of the NSSE, Part II (Bloomington: Public School Publishing Company, 1936), p. 92; William C. Hartshorn, "Listening...A Basic Part of Music Education," National Elementary Principal, XXXIX (December, 1959), 33 - 36.

²Eleanor Laura Tipton, "A Listening Program of Instrumental Music for the Elementary Schools, Volumes I and II (unpublished Doctoral Dissertation, Columbia University, 1962), p. 33.

³Leon C. Karel, "The Total Music Cycle," Instrumentalist, XX (August, 1965), 45 - 47.

The source of both of these trends is the technological revolution. It has made music "cheap, portable, and accessible."⁴

It has brought about

. . . an auditory - sensory revolution for millions of people. The long-playing record with its advantages of uninterrupted sound and relative economy, the development of high-fidelity systems and their reproduction of realistic sound have literally thrust a nation not only into a new sound awareness but a continually expanding one. Never before have so many people been exposed to so many opportunities to know and enjoy music."⁵

As a consequence, there are very few people who cannot afford to hear the best of music on the radio, on television, and through the medium of recordings.

The technological revolution has also influenced the structure of North American life. In Mueller's words,

It has contributed to the emancipation of labor and created a new bourgeoisie out of the previous proletariat. It has produced what we now know in sociological language as the "mass culture".⁶

⁴Viola Ethel Boekelheide, "Some Techniques of Assessing Certain Basic Music Listening Skills of Eight and Nine Year Olds," (unpublished Doctoral Dissertation, Stanford University, 1960), p. 1.

⁵Emma Dickson Sheehy, Children Discover Music and Dance (New York: Dryden-Holt, 1959), p. 209.

⁶John H. Mueller, "Music and Education: A Sociological Approach," Basic Concepts in Music Education, Fifty-Seventh Yearbook of the NSSE, Part I (Chicago: University of Chicago Press, 1958), p. 115.

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One characteristic of this mass culture has been an enormous increase in the number of people participating in the privileges of life: education, travel, the arts, political influence, and purchasing power. Access to the public concert today is no longer a class privilege: it is now a purchasable right limited only by the ability and willingness of a person to pay the price of admission.⁷

One result of these two trends is that music has become very available. This availability of music has helped to increase participation in music through listening. It is now recognized that listening to music has become one of the most rapidly expanding cultural activities in present day society.⁸

Music's availability has also created problems. One of these problems is concerned with the quality of musical experiences that influence individuals' listening habits. As Leonard noted:

When these professional performances are combined with countless performances by amateur singers, instrumentalists, choral groups, and orchestras, and the music programs of the schools and churches, the result is a musical environment so rich and full that a person has difficulty in deciding what to hear and what to miss.⁹

⁷ John H. Mueller, The American Symphony Orchestra, (Bloomington: Indiana University Press, 1951), p. 14.

⁸ Boekelheide, Ibid; William C. Hartshorn, "The Role of Listening," Basic Concepts in Music Education, Fifty-Seventh Yearbook of the NSSE, Part I (Chicago: University of Chicago Press, 1958), p. 261.

⁹ Charles Leonard, Recreation Through Music (New York: Ronald Press Company, 1952), p. 35.

Not all music is worthy of becoming a part of an individual's listening, or of influencing his standards of musical taste. Since a vast majority of the members of today's audiences are laymen rather than music specialists, direction in this area is needed.

Another of these problems is concerned with the use of music as a background for other activities. Some music educators believe that this practice has encouraged people not to listen. For example, according to Stendler,

Today we shop at the supermarket to music, buy our railroad tickets to music, are subjected to singing commercials and indeed are so bombarded with musical stimuli that in self-protection many of us no longer listen.¹⁰

Tipton has put forth a similar point of view.

In the electronic world of today, children and adults alike are literally bombarded with music of all kinds. Opportunities for hearing music are so varied and easy to come by, that all too often, the music serves only as a background for other activities. Paradoxically, as science has perfected new equipment, making music more accessible to more people and insuring finer gradations of sound, the art of listening and attending to music has sometimes become a lost art.¹¹

¹⁰Cecilia Stendler, Teaching in the Elementary School (New York: Harcourt-Brace and Company, 1958), p. 436.

¹¹Tipton, op. cit., p. 1.

While the situation may not be as serious as that depicted by Stendler and Tipton, it must be admitted that that faculty of hearing is curiously undeveloped in many people.¹² Aural concentration is difficult to accomplish, even when listening to a speech where the medium consists of words which express definite ideas. It becomes even more difficult when demanded in a situation in which there are no familiar words, patterns, and associations. Listening to music typically occurs in the latter situation. This environment may be one of the reasons members of audiences "tune out." Mueller's plea for the training of not only composers and performers, but also audiences deserves consideration.¹³

Music educators have been sensitive to the need to develop discriminative, selective listeners. Their concern, however, has mainly led to a focussing of attention upon the teacher. It has resulted in studies of teacher preparation for classroom teaching. Much less attention has been directed toward the consumers of music. It is the opinion of the present investigator that, through looking at them, it may be possible to find "answers" to the problem of guided music listening experiences. For example, it would seem that before deciding what music to present in appreciation

¹²Howard Hanson, "The Scope of the Music Education Program," Music Educators' Journal, XXXIV (June, 1948), 8.

¹³Kate Hevner Mueller, "Studies in Musical Appreciation," Journal of Research in Music Education, IV (Spring, 1956), 3.

courses or general music courses, the teachers need to know how the way individuals listen to music is related to their training, musical taste, familiarity with the music, musical interest and aptitude, and musicality. Such information would facilitate the teaching-learning process. The present study was undertaken with the hope that it would make such a contribution.

PURPOSE OF THE STUDY

The purpose of this study was to develop a semantic differential test which could be used to determine the dimensionality of the responses made by individuals as they listen to music. Two qualities desired in any measurement procedure are validity and reliability.¹⁴ Since the semantic differential is a measurement technique which to date has only been modestly used in the field of aesthetics, both required careful consideration.

Validity is a complex concept which has been interpreted variously by different writers.¹⁵ It is most often defined as

¹⁴Robert L. Thorndike and Elizabeth Hagen, Measurement and Evaluation in Psychology and Education (second edition; New York: John Wiley and Sons, Inc., 1961), p. 160.

¹⁵Robert L. Ebel, Measuring Educational Achievement (Englewood Cliffs: Prentice-Hall, Inc., 1965), pp. 377 - 379.

the degree to which the test measures what it purports to measure, or, the extent to which the test does the job for which it was intended. Thus, a test has high or low validity only in terms of its use for specific purposes and with specific groups. It cannot be said to have validity in general.¹⁶

In the present study, the semantic differential was constructed for the purpose of detecting patterns of responses to selected excerpts of different kinds of music of listeners with varied musical backgrounds. Hence, the problem of the validity of the semantic differential constructed by this investigator was approached by testing hypotheses involving the listener and music.

The concept of reliability is concerned with the accuracy and consistency with which a test measures whatever it measures.¹⁷ Reliable measurement implies that, with repeated samplings of behavior, an individual stays in about the same place in his group. Three distinct possibilities exist for securing the data needed to calculate an estimate of reliability. They are

¹⁶Thorndike and Hagen, op. cit., pp. 171 - 172; Georgia S. Adams, Measurement and Evaluation (New York: Holt, Rinehart and Winston, 1964), p. 103.

¹⁷Adams, op. cit., pp. 68 - 101; Ebel, op. cit., pp. 308 - 344; Thorndike and Hagen, op. cit., pp. 174 - 194.

repetition of the same test or measure, administration of a second equivalent form of the test, and subdivision of the test into two or more equivalent fractions. Of these, the preferred approach is to administer parallel forms of the test with a time interval between the testing sessions, since it permits all sources of variation to have their effects. In the present study, however, this method was not chosen because of the great difficulty in equating musical excerpts for the two forms of the test. Instead, the test-retest method with a time interval between sessions was chosen. The reliability coefficient thus obtained is a coefficient of stability: it measures error variance due to temporal variations. Such an estimate does not, of course, account for variation which could arise if a different sample of musical excerpts had been selected for the test.

HYPOTHESES

As already stated, the semantic differential's validity in this study was considered to be a function of its sensitivity in detecting differences in the listeners' response patterns to the music. The review of literature indicated that an individual's response to music is probably largely determined by three factors: his training in music, the type of music involved, and the listener's familiarity with the music presented to him. Listed below are four hypotheses involving these variables.

They were tested in this study:

- I. There is no relationship between the musical background of an individual and his semantic factor responses to selected excerpts of music.
- II. There is no relationship between the musical background of an individual and his semantic factor responses to selected excerpts of classical and popular music.
- III. The degree of familiarity with musical selections is unrelated to the semantic factor structure of an individual's responses.
- IV. There is no relationship between the musical background of an individual and his semantic factor responses to selected excerpts of familiar and strange music.

DEFINITION OF TERMS

For purposes of this study, the following definitions were adopted:

Listening. This is the process of apprehending or comprehending music. In this study, this act was limited to the situation in which one listens as a member of an audience rather than as a member of a performing group.

Listener. A listener is anyone who listens to music, whether he be a layman or a sophisticated musician, in the environment noted above.

Classical music. This is used to refer to art-music or "highbrow" music in contradistinction to popular music or music for entertainment. The expression is therefore used in antithesis

to popular music.

Popular music. This is used to refer to music for entertainment in contradistinction to classical music. It is a rather inclusive term in that both current and past hit-parade selections, and music from shows and Broadway Musicals fall in this classification.

Modern music. This expression is used to refer to classical type music which has been composed since 1900. Twentieth century music and contemporary music are other terms used to designate this type of music.

Familiar or strange selection. These terms are used to refer to the degree to which the musical excerpts presented to the listeners in this study were previously known and recognized by them. Since this information was indicated by the listeners on the first scale on the semantic differential, it was a judgment made by the subjects. If either the first or second spaces of the familiar - strange scale on the test were marked, the excerpt was considered familiar. If the third, fourth, or fifth spaces of this scale were marked, the excerpt was considered strange.

Practical training. This expression refers to musical instruction which involves performance on the part of the individual receiving the instruction.

Theoretical training. This expression refers to musical instruction which is centred upon the science of musical

construction as opposed to the art of execution. Such training may be taken in a number of areas, examples being rudiments, harmony, counterpoint, history, form and orchestration.

Formal training. This expression is used to refer to musical instruction which has been received from a qualified person, be he a private music teacher, an instructor in the school or at university, or the conductor of a musical organization. It precludes self-instruction.

Semantic differential test. This is a highly generalizable technique of measurement developed by Charles Osgood. The test is a series of scales which may be used to judge a concept or an object.

DESIGN OF THE STUDY

The Sample

Data used in this study were obtained from a sample of one hundred and thirty-six individuals, each of whom was associated with the University of Alberta either as a student or a professor. Information concerning each subject's musical background was obtained from a questionnaire designed by the investigator.

Procedure

1. Before beginning the testing program, some pilot

work was done to assess the suitability of the semantic differential test and to refine testing procedures. A full-scale pilot study, however, was not conducted.

2. The semantic differential was administered to the one hundred and thirty-six subjects in groups of various sizes during October, 1967.
3. A second administration of the semantic differential was carried out in November, 1967. Seventy of the original one hundred and thirty-six subjects participated in this testing session.
4. The semantic differential tests were scored and the IBM cards punched by the IBM 1230 Optical Scorer in the Faculty of Education Division of Educational Research. Statistical treatment was determined with the help of the Division of Educational Research. The processing was carried out by the Computing Centre at the University of Alberta.
5. The results of the statistical treatment were analyzed by the investigator.

Analysis of Data

1. The major analyses of this study utilized the statistical technique factor analysis.

2. A second statistical technique which was necessary was factor matching.
3. In order to obtain an estimate of the instrument's reliability the statistical technique of finding the correlation between two sets of data was used.

LIMITATIONS OF THE STUDY

In this study, only three variables -- musical background, the type of music, and familiarity -- were considered to be predictors of the way in which individuals respond to music. Other variables which may influence the listener's responses were not considered. Examples include the listener's attitude toward a specific selection, his mood preceding the listening period, his personality structure, and his musical ability.

This study is also limited by the musical excerpts used on the semantic differential test. All these excerpts were selected from the symphonic repertoire. The decision avoided the possibility of bias on the part of the subjects regarding voice timbre. It did not, however, avoid bias on the part of the subjects regarding instrumental timbre. While this problem may have been reduced by the fact that the classical excerpts were all selected from the period extending from 1750 to 1900, this step did not eliminate this problem. As noted by Paul

Bekker in his book The Orchestra, the orchestra's organization underwent many changes in this one hundred and fifty year period.¹⁸ Haydn's orchestra was not the same as Beethoven's; Beethoven's was not the same as Berlioz's. Some of the subjects who participated in this study may have strongly preferred one or more of the orchestras represented in the eight classical excerpts.

A second problem arising from the musical excerpts involves the six popular excerpts. These were perhaps not as current as would have been desirable. That is, many of the subjects, due to their age, may not have labelled them popular. Unfortunately, many of today's "pop tunes" have not been orchestrated.

It may also be considered a limitation of this study that only fourteen musical excerpts, eight classical and six popular, were presented to the subjects. This number is small. Moreover, to represent one hundred and fifty years of symphonic classical music with eight excerpts is difficult.

The subjects who participated in this study listened to re-recorded excerpts of music in a group situation. Thus, while the experimental conditions preserved a social atmosphere, the environment in which the subjects were asked to listen cannot be

¹⁸Paul Bekker, The Orchestra (New York: W. W. Norton and Company, 1963).

said to be the same as that of the concert hall. There, the ability to see the orchestra and the conductor's gestures may play an important role for the audience. Likewise, the program notes commonly provided at concerts may also be important determiners of the audience's responses. Hence, any generalizations must be made in the light of this limitation.

Finally, this investigation is limited by the fact that the sample involved was, but for one case, entirely composed of university students, the majority of whom were between nineteen and twenty-five years of age. These characteristics of the sample must be considered when making generalizations.

ORGANIZATION OF THE REPORT

In Chapter I the problem was identified and discussed. Presented in Chapter II is a review of related literature and research studies. Chapter III describes the sample, the data gathering instruments, and testing procedures, and the statistical treatment of the data. In Chapter IV the results of the statistical analyses are reported and interpreted. The conclusions drawn plus their implications are presented in the final chapter.

CHAPTER II

A REVIEW OF RELATED LITERATURE

The purpose of this chapter is to review the literature in the field of listening to music which is pertinent to this research project. This material has been divided into four main topics. Presented in the first section -- The Nature of the Listening Experience -- is a synthesis of music educators' views about what listening to music ideally should involve. These views are undocumented by research. In the other three sections -- The Types of Listeners and Listening, The Effects of Familiarity and Repetition, and The Effects of Type of Music -- actual research projects have been discussed whenever possible. Again, however, some of the relevant literature is conjecture on the part of music educators rather than findings from research.

THE NATURE OF THE LISTENING EXPERIENCE

The distinguishing characteristic of music is tone. Unlike an object which occupies and remains conveniently static in space, tone exists in time.¹ This fact has implications of significance

¹William C. Hartshorn, "The Role of Listening," Basic Concepts in Music Education, Fifty-Seventh Yearbook of the NSSE, Part I (Chicago: University of Chicago Press, 1958), p. 262.

for listening to music. If music is to have meaning, it must be caught and remembered as it moves in time.² Failure upon the part of the listener to do so results in a loss of the material covered during the period of lapsed attention. Once the thread is lost, it is difficult to recapture it.³ Thus, listening to music requires both an attentive ear and a retentive mind.

Not only tonal memory but also expectation and selectivity play important roles when listening to music. Expectation may be defined as the "ability to anticipate the musical structure."⁴ It enables the listener to predict with a high degree of probability the course of the composition. Selectivity may be defined as the process of relegating some elements in the total complex to a subordinate position, thus permitting a selected few elements to control.⁵ Basic to this concept is the idea that what is

²Roger Sessions, The Musical Experience of Composer, Performer, Listener (Princeton: Princeton University Press, 1958), p. 19; Ralph Vaughan Williams, Some Thoughts on Beethoven's Choral Symphony with Writings on Other Musical Subjects (London: Oxford University Press, 1953), p. 62; Grosvenor Cooper, Learning to Listen (Chicago: University of Chicago Press, 1957), p. 57.

³Geoffrey Bush, Musical Creation and the Listener (London: Frederick Mueller Ltd., 1954), p. 10.

⁴Paul Hindemith, A Composer's World (Garden City: Doubleday and Company, Inc., 1961), p. 23.

⁵James L. Mursell, The Psychology of Music (New York: W.W. Norton and Company, Inc., 1937), p. 201.

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important in listening is not trying to hear everything but rather selecting the right things.

Frequently the term listening is used in contradistinction to the term "hearing".⁶ To hear music calls for little or no recognition, response, and understanding. Listening on the other hand is an activity centered in intellectual participation. It involves much more than an emotional response to tonal combinations. At the heart of this activity is the ability to detect form.⁷ The listener who is unable to detect form is limited to a most rudimentary level, for, at best, he can apprehend only the aesthetic qualities of isolated tones and phrases.

Acceptance of the nature of the listening experience as delineated above places musical training in a position of paramount importance. Developing expectation, being selective, and detecting form are all improved by knowledge about music and knowledge of music.⁸ To engage in these activities requires musical behavior

⁶Eleanor Laura Tipton, "A Listening Program of Instrumental Music for the Elementary Schools, Volumes I and II" (unpublished Doctoral Dissertation, Columbia University, 1962), p. 43.

⁷Harry S. Broudy, "A Realistic Philosophy of Music Education," Basic Concepts in Music Education, Fifty-Seventh Yearbook of the NSSE, Part I (Chicago: University of Chicago Press, 1958), p. 71.

⁸Lillian L. Baldwin, "Listening," Music Education, The Thirty-Fifth Yearbook of the NSSE, Part II (Bloomington: Public School Publishing Company, 1936), p. 96; Foster McMurray, "Pragmatism in Music Education," Basic Concepts in Music Education, Fifty-Seventh Yearbook of the NSSE, Part I (Chicago: University of Chicago Press, 1958), p. 55; Cooper, Ibid, p. 67; Bush, Ibid, p. 10; Hindemith, Ibid, p. 23.

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equipment such as the understanding of musical form, harmony, and melody. Since untrained listeners lack this type of equipment, their awareness of the elements of music which make up the expressive pattern of sound would appear to be severely limited.

TYPES OF LISTENERS AND LISTENING

One of the first discoveries in the study of music appreciation was the fact that individuals differ to a significant degree in what they get out of music.⁹ This realization stimulated attempts to define the various types of listeners and listening, and to explain the causes of these differences.

Evidence for the existence of varieties of musical experience may be found in three sources: empirical, theoretical, and experimental.¹⁰ Evidence from empirical literature consists of casual accounts of responses to music. These may be found in various literary sources, examples including Essays of Elia by Charles Lamb and Magda Kelber's The Introspective Listener.¹¹

⁹Kate Hevner Mueller, "Appreciation of Music and Tests for the Appreciation of Music," University of Oregon Publication, IV (February, 1934), p. 86.

¹⁰Max Schoen, The Psychology of Music (New York: Ronald Press Company, 1940), p. 114.

¹¹Charles Lamb, The Essays of Elia (Boston: Little, Brown, 1892), pp. 38 - 41; Magda Kelber, The Introspective Listener (London: James Clarke and Co. Ltd., 1951).

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Theoretical evidence involves the more or less studied enumerations of types of reactions to music based on the opinions of the particular writers. One of the earliest contributions in this category was made by the aesthetician, Edmund Gurney. His theory was that all musical perception was either definite or indefinite.¹² These two ways of perceiving music differed in that definite listening involved the perception of form whereas indefinite listening involved only the perception of "successions of agreeably-toned and harmonious sound." Although Gurney recognized that these two ways of perceiving and enjoying music could shade into one another and that each could be realized in various degrees by a single individual listening to a single composition, he maintained that in their typical states they were radically different. Moreover, in Gurney's opinion, the more definite one's apprehension of music, the closer one was to attaining the ideal type of listening. Since Gurney's time, the view that there is a single, ideal type of listening and that all others are more or less illegitimate has recurred, particularly in the last decade.

Some fifty years after the publication of The Power of

¹²Edmund Gurney, The Power of Sound (London: Smith, Elder, and Co., 1880), pp. 304 - 311.

Sound, Philip E. Vernon re-examined Gurney's classification.¹³

Vernon agreed with Gurney that indefinite listening was characterized by more or less passive reception, and definite listening by active attention to the notes, themes, harmonies, rhythms, and counterpoints. However, for each broad category Vernon suggested seven types of responses which could be involved. Moreover, he suggested that the way one listened was a function of one's training. In his view, the untrained listener would indulge in any of the seven varieties of indefinite listening. In addition to defining Gurney's terms more explicitly, Vernon also applied Gestalt psychology to them. According to Vernon, definite listening was equivalent to the perception of figures, and indefinite listening was a general response to the ground en masse. While a hierarchy of figures and grounds may be distinguished in complex musical compositions, for a large proportion of listeners the melody or tune is the figure and its accompaniment, the ground. Vernon suggested that the number of figures and grounds a listener is able to distinguish was a function of his musical training. He did not, however, substantiate this claim with research.

A more systematic theoretical classification than Gurney's was put forth by Ortmann. His classification, a genetic one,

¹³ Philip E. Vernon, "Auditory Perception I The Gestalt Approach," British Journal of Psychology, XXV (October, 1934), pp. 123 - 129.

divided listeners' responses into three categories: sensorial, perceptual, and imaginal.¹⁴ Having for their basis the raw sensory material of music, and being limited entirely to what is given in the auditory stimulus itself, sensorial responses are concerned only with qualities. In their pure form, they consist of nothing more than pleasant-unpleasant distributions. Perceptual responses are responses to tonal relationships. Since they are concerned with progressions, sequences, phrases, and form they could be described as serial responses. As such, they represent a more highly developed form of response than a sensorial one. The highest form of response, according to Ortmann, is an imaginal response. As indicated by the name, this is essentially a representative response resulting from the play of imagery. It is dependent upon the functioning of the listener's past experience. Ortmann contended that the sensory response was the most rudimentary form of response, being typical of "young children, untrained adults, and untalented pupils."¹⁵ The perceptual response he saw as being typical of the musician, the student, and the talented laymen. The imaginal response was characteristic of trained musicians and superiorly talented laymen who have had frequent association with auditory stimuli. Thus, both Vernon and Ortmann

¹⁴ Otto Ortmann, "Types of Listeners: Genetic Considerations," The Effects of Music (New York: Harcourt-Brace, 1927), pp. 38 - 76.

¹⁵ Ibid, p. 49.

suggested that an individual's training in music was an important factor in determining his response to the music. In addition, Ortmann noted two other variables, listening experience and talent, which could have considerable influence. Unfortunately, he did not define the term "talent". Neither Ortmann nor Vernon substantiated their ideas with research.

More recently, the distinguished American composer and teacher, Aaron Copland, suggested that music may be listened to on three planes.¹⁶ When it is heard for the sheer pleasure of the musical sound itself, one is listening on the "sensuous plane". On this level the music is heard without thinking or considering it in any way; hence, this is the simplest way of listening. On the next highest level, the "expressive plane", the listener attempts to give the music some meaning, preferably concrete. Only when the music exists in terms of the notes and their manipulation does one listen on the "sheerly musical plane". To achieve this plane, one must

. . . hear the melodies, the rhythms, the harmonies, the tone colors in a more conscious fashion. But above all he must, in order to follow the line of the composer's thought, know something of the principles of musical form.¹⁷

¹⁶ Aaron Copland, What to Listen For in Music (New York: McGraw-Hill Book Company, Inc., 1957), pp. 9 - 19.

¹⁷ Ibid, p. 17.

Hence, at this level, one is listening for something.

The active-passive dichotomy has frequently provided a framework for discussing listening both in the areas of music and of communication. An example of a music project in which this dichotomy was employed is that of Eleanor Tipton. Behind her instrumental music program for elementary schools is the thesis that there are two main types of listening, active and passive.¹⁸ For Tipton, passive listening was listening for the beauty of the sound or for the "mood appeal" of the music. Active listening, in contrast, denoted listening for a purpose; it was therefore listening centered in participation. Tipton subdivided active listening into three levels: listening for associative ideas, listening for imaginative ideas, and listening for musical content. The first of these is concerned with descriptive ideas or pictures stated by the composer whereas the second is concerned with associative ideas not definitely stated by the composer but suggested by the music. It should be noted that these two categories constitute, for Copland, listening on the expressive plane. Tipton's third and highest level of active listening is analogous to Copland's listening on the sheerly musical plane.

¹⁸Eleanor Laura Tipton, "A Listening Program of Instrumental Music for the Elementary Schools, Volumes I and II" (unpublished Doctoral Dissertation, Columbia University, 1962), pp. 43 - 53.

Another project in which this active-passive dimension provided a philosophical foundation was Weisgerber and Rasmussen's experimental work with the Edex Teaching System.¹⁹ This work represents one of the first experiments in systems instruction in the field of music education.

Experimental evidence for the existence of varieties of musical experience consists of scientifically planned laboratory procedures which attempt to discover individual differences for various types of stimuli. Conducted in 1912, Harry Porter Weld's research was designed to throw light upon the differences in the mental processes involved in the various sources of musical enjoyment.²⁰ In this study he analyzed his subjects' detailed introspective descriptions. From this analysis, Weld discerned four types of auditor: the analytic who made a critical analysis; the motor who indulged either overtly or covertly in singing, whistling, or other movements; the imaginative, whose passive rather than active attitude often resulted in day-dreaming about non-musical matters; and the emotional.

¹⁹Robert A. Weisgerber and Warren I. Rasmussen, "Eighty Ears a Teacher," Music Educator's Journal, LI (November-December, 1965), pp. 79 - 84; "A Teaching System for Music Listening," Audiovisual Instruction, II (February, 1966), pp. 106 - 109.

²⁰Harry Porter Weld, "An Experimental Study of Musical Enjoyment," American Journal of Psychology, XXIII (April, 1912), pp. 245 - 308.

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Like Weld, Myers also conducted a study in which he used the introspective technique.²¹ From the reports of his fifteen subjects, all trained in introspection and having had varying amounts of musical training, Myers also differentiated four types of listeners. These he termed the intrasubjective, the associative, the objective, and the character. To intrasubjective listeners music appealed for the sensory, emotional, or conative experiences which it aroused. Those to whom music appealed because of the associations which it suggested were associative types. When music's appeal lay in its use or value, Myers considered the listener to be an objective type. The character type of listener was someone who characterized the music as morbid, jovial, insincere, dainty, mystic, playful, and the like.

In comparison to Myers' investigation, Vernon Lee's study of the varieties of musical experience is more limited in scope.²² Lee assumed there were two types of auditors: hearers and listeners. Hearers she defined as those people for whom music had a meaning beyond itself. These auditors engaged in "musical

²¹Charles S. Myers, "Individual Differences in Listening to Music," The Effects of Music (New York: Harcourt-Brace, 1927), pp. 10 - 37.

²²Vernon Lee, "Varieties of Musical Experience," North American Review, CCVII (May, 1918), pp. 748 - 757.

daydreaming." Listeners she defined as those people for whom music has no meaning beyond itself. These auditors attended to musical shape for its own sake. Lee asked each subject to classify himself into one of these two categories. From the data collected, she concluded that the unmusical person engaged in hearing where as the musical person engaged in listening. The basis for drawing these conclusions is not apparent.

More recently, an attempt to investigate the process of apprehending and comprehending music was made by Robert W. Yingling.²³ Study of the pertinent literature and pilot work led Yingling to conclude that all responses to music could be classified under four headings: associative, emotional, intellectual, and sensorial. Like the three studies previously discussed, Yingling employed the introspective technique. In addition, he also presented to the subjects a thirty-two item questionnaire to be answered during the second hearing of each record. According to Yingling, this questionnaire contained eight questions for each of the four types of reactions. However, after careful study of both his definitions of the reaction categories and the questions, this writer feels this is a dubious claim. Moreover, the questions were undoubtedly

²³Robert W. Yingling, "Classification of Reaction Patterns in Listening to Music," Journal of Research in Music Education, X (Fall, 1962), pp. 105 - 120.

given various interpretations by the subjects participating in the study. Precise measurement is therefore not a quality of Yingling's instrument. Finally, it is also possible that, after the first selection, all subsequent responses to the music were influenced by this questionnaire. That is, the questionnaire may have suggested reactions to his listeners. While Yingling's subjects were apparently quite varied with regard to such characteristics as musical background, performance experience, musical interest, and age, no attempt was made to find out if there was a relationship between any of these variables and the listeners' responses.

That a variety of responses occurs when people listen to music has also been demonstrated in studies not designed to classify listeners as types. Examples are the studies of Mueller and Boekelheide. In 1956, Kate Hevner Mueller conducted two studies designed to measure as objectively as possible the musical qualities which could be observed by a wide variety of listeners who spent an hour listening to three repetitions of the third movement of Mozart's G Minor Symphony.²⁴ Following each hearing, the subjects, all college students at Indiana University, were asked to answer the same set of questions about this composition. These questions represented a test of musical concepts.

²⁴Kate Hevner Mueller, "Studies in Musical Appreciation," Journal of Research in Music Education, IV (Spring, 1956), pp. 12 - 25.

Such tests measure the listener's ability to identify certain details by name, determine whether or not he can remember them long enough to recognize them on repetition, and whether or not he has any facility in calling them to mind in order to understand the relation of the various parts of the composition as a unified whole.²⁵ Using the information collected about musical training, attitude, and interest, Mueller separated her subject into groups. The data collected from the test defined a wide gap between the sophisticated musician and the amateur listener. It showed that progress in apprehending music was significantly related to formal training, interest, attitude, and verbal intelligence. For Mueller, the results were so startling that she concluded:

The composer who hopes to have his music accepted and understood by average listeners, needs an intermediary who will teach them to "hear" what has been put into the music, to make them musically literate.²⁶

In attempting to develop techniques to assess certain basic music listening skills of eight and nine year olds, Boekelheide, after examining primary music curricula for agreement on

²⁵Kate Hevner Mueller, "Appreciation of Music and Tests for Appreciation of Music," University of Oregon Publication, IV (February, 1934), pp. 131 - 137.

²⁶Mueller, "Studies in Musical Appreciation," op. cit., p. 17.

the objectives, scope, sequence, and expected outcomes of music programs, designed six tests.²⁷ Based upon the belief that musicality is not a combination of separate sensory abilities, but rather perceptual responsiveness to musical structures, these tested rhythmic response, sensitivity to melodic contour, pitch discrimination, phrase discrimination, formal awareness, and mood response. Each test contained excerpts of musical compositions. The test results showed that there was a wide range of individual differences in music listening skills among the children tested. Generally speaking, the children who had the higher levels of achievement in reading and other areas of the curriculum, as well as intelligence, had also achieved the basic music listening skills. This was particularly true for listening skills relating to melodic contour, form, and pitch discrimination.

A second discovery in the study of music appreciation was that most listeners indulge in several types of listening: they do not listen in one exclusive way.²⁸ This realization that few if any listeners belong in a single category makes the classifications just examined look like fixed types. According to Farnsworth, it was not the intent of these theorists to create topologies.²⁹

²⁷Viola Ethel Boekelheide, "Some Techniques of Assessing Certain Basic Music Listening Skills of Eight and Nine Year Olds" (unpublished Doctoral Dissertation, Stanford University, 1960).

²⁸Frank Howes, Man, Mind and Music (London: Secker and Warburg, 1948), p. 157; Tipton, op. cit., p. 53.

²⁹Paul R. Farnsworth, The Social Psychology of Music (New York: Dryden Press, 1958), p. 151.

Rather, they simply emphasized the different things people have learned to "see" in music. In this, Farnsworth is probably correct, for even Weld recognized that while ideally the types may be conceived as being qualitatively different, in practice they may exist in intimate combinations.³⁰ Likewise, Copland emphasized that his breakdown of listening on three separate planes was a purely mechanical split done for the sake of clarity.³¹ One researcher, Yingling, made a definite provision for this in this study.³² He used the concept of a dominant response which he defined as a decided numerical prominence of one of the four types of responses.

THE EFFECTS OF FAMILIARITY AND REPETITION

Should the teachers of general music classes and music appreciation courses present many recordings for a broad listening experience or should they teach the many phases of music while making repeated use of fewer recordings? When preparing

³⁰Weld, op. cit., p. 300.

³¹Copland, op. cit., p. 18.

³²Yingling, op. cit., p. 116.

lessons in listening to music, teachers need to know which is the wiser procedure.

Eminent music educators such as Sur and Schuller, Dykema and Cundiff, Mursell and Glenn, and Tipton have all adopted the position that repeated hearings of a composition are not only desirable but necessary.³³ Sur and Schuller, for example, advise the teacher to "plan for several presentations of the composition to the class. Each presentation should introduce one major aspect of the music."³⁴ Tipton, in her foreward to Volume II, writes: "the inclusiveness of the notes implies the recommendation that children listen to a musical composition several times, so that they may make lasting friends with it."³⁵

³³Peter W. Dykema and Hannah M. Cundiff, School Music Handbook, A Guide for Music Educators (Boston: C. C. Birchard and Company, 1955), p. 381.

James L. Mursell and Mabelle Glenn, The Psychology of School Music Teaching (New York: Silver Burdett Company, 1938), p. 115.

³⁴William R. Sur and Charles F. Schuller, Music Education for Teen-Agers (New York: Harper and Brothers, 1958) p. 196.

³⁵Eleanor Laura Tipton, "A Listening Program of Instrumental Music for the Elementary Schools, Volume II" (unpublished Doctoral Disseration, Columbia University, 1962), p. 103.

Hence, for these music educators, a passing acquaintance with a musical selection is insufficient.

Some musicians have also adopted this position. Copland, for example, notes that "the key to the understanding of new music is repeated hearings."³⁶ Copland also explains the reason repetition of musical selections is desirable:

Many listeners have attested to the fact that incomprehensibility gradually gives way before the familiarity that only repeated hearings can give.³⁷

Behind this recommendation is undoubtedly the idea that the limitations of human beings' perceptive and receptive capacities make repeated hearings necessary.

Hare, in his discussion of the pedagogical principles of music appreciation, noted that

. . . in the majority of instances the reasons for a student's attitude of dislike for or indifference to a given musical selection of some complexity may be attributed mainly to his inability to perceive design and his unfamiliarity with the selection.³⁸

³⁶Copland, op. cit., p. 251.

³⁷Ibid.

³⁸Robert Yates Hare, "The Pedagogical Principles of Music Appreciation" (unpublished Doctoral Dissertation, State University of Iowa, 1959), p. 117.

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He therefore concluded that there should be adequate repetition of a musical selection in order that a student may become familiar with it. Moreover, Hare contends that beginning with the familiar and working to the unfamiliar has long been regarded as axiomatic in the teaching of any subject. In his opinion, teachers of music appreciation have too frequently shown a lack of concern for this basic rule. According to Hare this psychological fact should be used as a guide when attempting to implement a systematic music appreciation program.

Cahn's study of the problems involved in the teaching of music appreciation as perceived by college students and teachers indicates that both groups view repetition of music as a more effective means of presenting the music.³⁹ Of the one hundred and two behaviors or competencies mentioned in his entire study, the students ranked this teaching procedure ninth while the teachers ranked it eighth. Thus, according to this study, repetition of musical examples is a key factor in the listener's ability to deal with music satisfactorily.

A number of studies have been conducted to determine the effects of familiarity and repetition on listeners. These

³⁹ Meyer Martin Cahn, "Problems of Music Appreciation Teaching as Perceived by Students and Teachers in Northern California Colleges and Junior Colleges" (unpublished Doctoral Dissertation, Stanford University, 1960), pp. 139 - 147.

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studies have approached the problem through the concept of enjoyment, that is, the listener's pleasant-unpleasant responses as recorded on a scale. As noted by Mursell, some of these studies are limited in scope in that they investigate the effects of familiarity when the same selection is heard again and again on the same occasion.⁴⁰ This lack of a time interval between the repetitions produces a familiarity not obtained under ordinary circumstances. In these cases the factor of fatigue plays a considerable part.

Gilliland and Moore investigated the effects of repetition of classical and jazz compositions.⁴¹ Fifty-four college students listened to twenty-five repetitions of two classical and two jazz compositions. Their results indicate that with repetition, the two classical selections gained more in enjoyment than did the two jazz selections. However, since this experiment involved somewhat lengthy sequences of immediate repetitions, the fatigue factor was of considerable importance.

⁴⁰James L. Mursell, The Psychology of Music (New York: W. W. Norton and Company, Inc., 1937), p. 217.

⁴¹A. R. Gilliland and H. T. Moore, "The Immediate and Long-Time Effects of Classical and Popular Phonograph Selections," Journal of Applied Psychology, VIII (1924), pp. 309 - 323.

The first part of the paper discusses the importance of the research and the objectives of the study. It also outlines the methodology used in the study and the results of the research. The second part of the paper discusses the implications of the research and the conclusions drawn from the study. The third part of the paper discusses the limitations of the study and the areas for future research.

The research was conducted using a quantitative approach and the data was collected from a sample of 100 participants. The results of the research show that there is a significant relationship between the variables studied. The implications of the research are that the findings can be used to inform policy and practice. The conclusions drawn from the study are that the research has provided valuable insights into the topic. The limitations of the study are that the sample size was small and the study was cross-sectional. The areas for future research are that the study should be replicated with a larger sample and over a longer period of time.

The research was conducted using a quantitative approach and the data was collected from a sample of 100 participants. The results of the research show that there is a significant relationship between the variables studied. The implications of the research are that the findings can be used to inform policy and practice. The conclusions drawn from the study are that the research has provided valuable insights into the topic. The limitations of the study are that the sample size was small and the study was cross-sectional. The areas for future research are that the study should be replicated with a larger sample and over a longer period of time.

Another early study by Washburn, Child, and Abel aimed at finding the effect of immediate repetition of a musical selection on the responses of pleasantness and unpleasantness.⁴² Sections of each of eight orchestral compositions ranging in style from severely classical to popular were heard five times in succession. In the case of popular music, Washburn found that repetition tended to lower rather than raise the pleasant response. For more serious music, repetition tended to raise the pleasant reaction. Furthermore, repetition of very popular music reached a maximal peak of pleasantness at an early performance, whereas the greatest amount of pleasure for seriously classical selections occurred in a later performance. With the exception of severely classical selections, repetition of compositions tended to decrease the pleasantness experienced sooner for musical subjects than for unmusical subjects. When increased familiarity produced increased pleasantness, the reasons given included better comprehension of the composition, greater attention to the individual aspects of the music (instrumentation, harmony, melody, form, etc.), agreeable imagery, and associations. Mueller has suggested that the one minute time length of the compositions was an

⁴²M. F. Washburn, M. S. Child, and T. M. Abel, "The Effect of Immediate Repetition on the Pleasantness or Unpleasantness of Music," The Effects of Music (New York: Harcourt-Brace, 1927), pp. 199 - 210.

important feature in the study's design.⁴³ With this the reviewer agrees. Most formal music compositions include a statement of the theme with some repetition, and then a digression usually quite different in character before a return to the theme. It would seem quite possible that, for many, a complete exposition of a theme with no digression or contrasting section, repeated five times, might very well become an unpleasant experience. Had the selections been longer, it is possible that even more positive increases in pleasantness might have been procured.

Schoen and Gatewood's study revealed that for most listeners there is a greater degree of pleasure for serious musical works which are very familiar than for new selections.⁴⁴ Moreover, for the "somewhat musical persons" familiarity is a more important conditioning factor in enjoyment than for the very musical.

In their study of the effects of familiarity and sequence of selections on pleasantness and unpleasantness responses, Downey and Knapp had college students listen to a musical program of nine compositions at weekly intervals for five weeks.⁴⁵ Included in

⁴³Kate Hevner Mueller, "Appreciation of Music and Tests for the Appreciation of Music," University of Oregon Publication, IV (February, 1934), 92.

⁴⁴Max Schoen and Esther L. Gatewood, "Problems Related to the Mood Effects of Music," The Effects of Music (New York: Harcourt-Brace, 1927), pp. 152 - 182.

⁴⁵J. E. Downey and G. E. Knapp, "The Effect on a Musical Programme of Familiarity and of Sequence of Selections," The Effects of Music (New York: Harcourt-Brace, 1927).

the program was program music, national music, poetic thought, and formal construction. According to the subjects, repetition increased the pleasantness of the musical compositions. The reported gain was greatest for those compositions considered by experts to be more subtle and of greater aesthetic value.

Krugman's results are not in complete agreement with those of Downey and Knapp. In his experiment, classical and "swing" selections were played once a week for eight weeks to three types of subjects: those who strongly preferred "swing" music, those who strongly preferred classical music, and those who were indifferent to all types of music.⁴⁶ Krugman found that, with repetition, the subjects showed a shift in the direction of pleasantness. Since this trend occurred for both types of music, Krugman concluded that "the positive affective shift can be produced by sheer repetition of the musical experience regardless of the classical or non-classical character of the music."⁴⁷

Verveer and colleagues studied the effects of repetition by playing two jazz compositions to college students who were asked to rate these compositions on a scale of affective

⁴⁶ Herbert E. Krugman, "Affective Responses to Music as a Function of Familiarity," Journal of Abnormal and Social Psychology, XXXVIII (April, 1943), pp. 388 - 393.

⁴⁷ Ibid, p. 392.

preference from pleasantness to unpleasantness.⁴⁸ It was found that pleasantness tended to reach an optimal affective limit with closely spaced repetitions. Further repetitions beyond this optimal point resulted in a steady decrease of pleasantness. However it was also found that well-spaced repetitions enhanced the effect of pleasantness. These observations concurred with those made by Fechner some fifty years earlier.⁴⁹

In 1963, Getz conducted a study designed to describe the effects that familiarity, based on the repetition of previously unfamiliar serious musical selections, had on the degree of musical preference of seventh grade children.⁵⁰ Analysis of the data revealed that familiarity through repetition was the reason given most often by subjects to explain their like or dislike reactions.

Studies have also been conducted in which the term "familiar" referred to selections previously known and recognized by the subjects. An example is Rubin-Rason's investigation.⁵¹ She played music from the standard orchestral repertory

⁴⁸ E. M. Verveer, H. Barry, Jr., and W. A. Bousefield, "Changes in Affectivity with Repetition," American Journal of Psychology, XLV (1933), 130 - 134.

⁴⁹ G. F. Fechner, *Vorschule der Aesthetik* (1st ed.; Leipzig: Breitkopf und Haertel, 1876), II, 240 - 243, as quoted by Robert W. Lundin, An Objective Psychology of Music (second edition; New York: Ronald Press Company, 1967), p. 175.

⁵⁰ Russell P. Getz, "The Influence of Familiarity Through Repetition in Determining Optimum Response," (unpublished Doctoral Dissertation, Pennsylvania State University, 1963).

⁵¹ Grace Rubin-Rason, "The Influence of Age, Intelligence, and Training on Reactions to Classic and Modern Music," Journal of General Psychology, XXII (January, 1940), 413 - 429.

The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the conservation of energy and the principle of the conservation of momentum. The second part of the paper is devoted to a discussion of the structure of the atom in the case of a central potential. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the conservation of energy and the principle of the conservation of momentum.

The third part of the paper is devoted to a discussion of the structure of the atom in the case of a non-central potential. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the conservation of energy and the principle of the conservation of momentum. The fourth part of the paper is devoted to a discussion of the structure of the atom in the case of a non-central potential. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the conservation of energy and the principle of the conservation of momentum. The fifth part of the paper is devoted to a discussion of the structure of the atom in the case of a non-central potential. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the conservation of energy and the principle of the conservation of momentum.

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The ninth part of the paper is devoted to a discussion of the structure of the atom in the case of a non-central potential. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the conservation of energy and the principle of the conservation of momentum. The tenth part of the paper is devoted to a discussion of the structure of the atom in the case of a non-central potential. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the conservation of energy and the principle of the conservation of momentum.

to seventy adults ranging in age from twenty to seventy. She concluded that

On the whole, the reaction of the group is most favorable to the most familiar, diminishing in proportion as increasing distortion of the familiar obscures recognizable melody and form.⁵²

Karl F. Schuessler's study also belongs in this category.⁵³ He played eight one minute excerpts from recordings for twelve hundred persons in twenty-seven groups including churches, lodges, and Parent-Teacher Associations. The selections included folk song, popular ballad, jazz, hillbilly, and classical music. Since, for all selections, the proportion of likes and dislikes changed directly with changes in familiarity, the results of Schuessler's study indicate that familiarity and preference are positively correlated.

THE EFFECTS OF TYPE OF MUSIC

Many of the studies concerned with the effects of music type on listeners' responses have been studies of musical preference or taste. Within this broad area, investigations of

⁵²Ibid, p. 420.

⁵³Karl F. Schuessler, "Social Background and Musical Taste," American Sociological Review, XIII (1948), 330 - 335.

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two kinds are particularly relevant: those dealing with the factors of which musical taste is a function and those dealing with the effects of repetition for various types of music.

According to Gernet, "of all the factors correlated with musical preference, musical training bears the closest relationship."⁵⁴ This contention has not always been borne out in research, as for example in Keston and Pinto's study.⁵⁵ This study investigated the possible relationships between musical preference and seven factors, one of which was formal musical training. Intellectual introversion was found to correlate most highly with musical preference. An intellectual introvert was described as a person who preferred planned and detailed work, was persistent at tasks, and was serious as opposed to casual. Musical training was, however, found to be one of the three most important factors influencing musical preference.

⁵⁴S. K. Gernet, Musical Discrimination at Various Age and Grade Levels (College Place, Washington: College Press, 1940), as quoted by Keston and Pinto, p. 105.

⁵⁵M. J. Keston and I. M. Pinto, "Possible Factors Influencing Musical Preference," Journal of Genetic Psychology, LXXXVI (1955), 101 - 113.

Farnsworth has also strongly stressed that one of the most important factors influencing musical taste is training.⁵⁶ In view of the evidence available from the field of clinical psychology, one cannot deny that we are tremendously influenced by the early attitudes and opinions of our teachers and parents. Hence, as pointed out by Lundin, those who have not had musical training may well prefer the less serious music due to their lack of ability to comprehend serious music.⁵⁷ Of those who have had training, some may prefer, to choose one example, opera to symphony because of the greater part that kind of music played in their early musical lives.

In a number of the studies of musical taste, the element of repetition has been included in addition to that of the type of music. These have already been reviewed in the previous section. From these, it should be noted that the most commonly employed classification of music is classical and non-classical or classical and popular. Other classifications, however, are possible. For example, Farnsworth, after reviewing the research in the area, determined that a composition with little variety

⁵⁶Farnsworth, op. cit., pp. 116 - 153.

⁵⁷Robert W. Lundin, An Objective Psychology of Music (second edition; New York: Ronald Press Company, 1967), p. 187.

reaches acceptance quickly, while a more complex selection gains acceptance more slowly.⁵⁸ Getz conducted an investigation in which he examined the preferences of children as they related to musical examples of varying degrees of complexity.⁵⁹ A selection's complexity was determined by counting the number of melodic repetitions within it. All the selections were serious music with which the subjects, all seventh grade children, were previously unfamiliar. He found no significant correlation (.05) between their preferences and the number of melodic repetitions. Getz had the students in his study indicate on a checklist of fundamental musical concepts the reasons for their preferences. Musical factors eliciting like reactions were, in order of frequency, fast tempo, variety of volume, melodic repeats, flowing rhythm, jumpy melody, variety of melodies, and mode. The reasons given for dislike reactions in order of their frequency were too loud volume, jumpy melody, dissonance, and minor mode. Thus, while Copland's statement that a straightforward melody and plenty of repetitions are the two things which make for easy listening is plausible, Getz's findings

⁵⁸Farnsworth, op. cit., p. 149.

⁵⁹Getz, op. cit., pp. 66 - 67.

indicate that other factors may be of more importance when making preferences. Certainly, his findings are of value to the teacher who is attempting to interest students in serious music.

Another possible classification of music is a three-fold one based on texture: monophonic, homophonic, and polyphonic. In Copland's opinion, homophonic music has more immediate appeal for the listener.⁶⁰ On logical grounds, this is an acceptable proposition. Polyphonic music requires listening in a linear fashion. Since most of our listening habits are formed by music that is harmonically conceived, it follows that polyphonic music should demand greater intellectual participation from the listener. To this writer's knowledge, no research on this proposition has been carried out to date.

Still another classification for serious music is classical and modern or classical and contemporary. When this distinction is made, the terms modern or contemporary are used to refer to music written since 1900. For many people, classical and modern music present two irreconcilable musical styles, the former posing graspable problems and the latter bristling with insoluble ones.⁶¹ Even music lovers report feeling disjointed when they listen to contemporary music. This notion that the work of present day

⁶⁰ Copland, op. cit., pp. 101 - 110.

⁶¹ Ibid, p. 243.

composers is "peculiar" and not "for them" has been accepted with equanimity despite the diversity in twentieth century music. This rejection of contemporary music may be the result of a variety of factors. One explanation is that most listeners, not wanting their listening habits disturbed, resent the controversial in music. Listeners of this disposition frequently complain that modern music is too dissonant, lacks melodic content, or is devoid of sentiment and feeling. These complaints indicate that many persons persist in trying to hear the same kinds of sounds or derive the same type of enjoyment from past and present masters. Another explanation is that contemporary music sounds peculiar because on most musical programs one hears very little of it in comparison to the amount of conventional music. The idea that "normal" music is music of the past has been emphasized, perhaps unwittingly, by radio and concert programs, the advertisements of the record manufacturers and their dealers, and the usual school curricula. In 1957, Copland estimated that in larger musical centres one-quarter of the music heard could be called contemporary. He considered this to be a generous estimate. In the writer's opinion, it is still valid today.

Yingling used still another classification in his study.⁶² Of the ten recordings of serious music which his subjects heard, five were absolute music and five were program music. In his

⁶²Yingling, op. cit., pp. 111 - 112.

report on the study, Yingling drew no generalizations about his listeners' responses for these two types of music. Apparently, this aspect was not considered when analyzing the data.

SUMMARY OF THE LITERATURE

From the music educators' viewpoint, listening to music is a highly intellectual activity involving tonal memory, expectation, and selectivity. At the heart of the act of listening is the detection of form, for only through following form can the listener understand the interrelationships between the various elements in a composition. Probably the greatest barrier between the listener and an understanding of the music he hears is the difficulty in detecting form.

Generally speaking, music educators' and laymen's views about what listening to music involves are somewhat different. For a large proportion of laymen, listening to music is pure spontaneous pleasure unmixed with intellectual effort. Music educators see this as a gross misapprehension, some labelling it as hearing and others as passive listening.

Educators in many fields are very sensitive to the importance of individual differences. Music educators cannot afford to ignore them in the area of listening to music. Mueller's research with the test of musical concepts defined a wide gap between the sophisticated musician and the amateur listener.

Numerous classifications for types of listeners and listening have been proposed by theorists and researchers alike. Despite the differences in the number of categories suggested and the names assigned these categories, examination reveals marked similarities among some of the types. For example, from the explanations supplied by their respective writers, Gurney's indefinite listening, Ortmann's sensorial category, Myers' intra-subjective type, Copland's listening on the sensuous plane, and Tipton's passive listening all appear to be essentially the same. Likewise, Vernon Lee's hearers, Weld's imaginative listener, Myers' associative listener, Copland's listening on the expressive plane, Tipton's listening for associative and imaginative ideas, and Yingling's associative category form another synonymous cluster. Hence from these theories and investigations certain broad classifications of listeners have emerged. These are perhaps most clearly defined by Yingling's and Tipton's models.⁶³

The majority of studies in which classifications for types of listeners or listening were put forth utilized the introspective technique. In other words, the investigator

⁶³Yingling, op. cit., pp. 105 - 110; Tipton, op. cit., pp. 40 - 43.

collected from his subjects an account of what went on in their minds as they listened to the selected excerpts of music. This technique will be further discussed in the chapter on design of the study.

The value of such classifications lies in the fact they emphasize not only the existence of individual differences but also the various things which people apprehend in music. Inherent in such classifications, however, is the danger of ignoring intraindividual differences. As pointed out by Tyler and Stellwagen, the variability in any group of students is of two kinds: interindividual differences or variability among people in some attribute, and intraindividual differences or variation among traits within a given person.⁶⁴ The former is often referred to as individual differences; the latter, trait variability. In all probability, no one practices one and only one kind of listening exclusively. However, it seems likely that each individual tends to employ one way of listening more than others.

The idea that formal musical training influences the way in which an individual listens has been widely accepted. However,

⁶⁴Fred T. Tyler and Walter R. Stellwagen, "The Search for Evidence about Individual Differences," Individualizing Instruction, Sixty-First Yearbook of the NSSE, Part II (Chicago: University of Chicago Press, 1962), p. 95.

there is a paucity of research studies designed to demonstrate this supposition. Only Mueller's study can be said to show that the way in which music is apprehended is significantly related to formal training.

In their discussions of listening methodology, music educators have considered the development of student familiarity with a composition to be highly desirable, and they have urged classroom teachers to make this one of the goals of the lesson. Students have also supported this idea that repetition of musical examples is desirable. Thus, it has been suggested that repetition of musical examples is a key factor in the listener's ability to deal with music satisfactorily.

Studies concerned with the effects of familiarity and repetition show that our affective responses to music change as a result of repetition of the stimulus and increased familiarity with the composition. Although complete agreement among these studies is lacking, certain trends are evident in regard to this pleasant-unpleasant function. In point form, these trends are as follows:⁶⁵

1. Classical selections tend to gain more in pleasant affective values with repetition

⁶⁵Lundin, op. cit., p. 176.

than do popular ones.

2. Popular music tends to reach the maximum of pleasantness at an early repetition, whereas classical selections reach their affective height with later performances.
3. With repetition, compositions considered by experts to be of greatest musical aesthetic value show the greatest gain in affective reaction with repetition.
4. Popular music reaches a rapid peak in affective value followed by a rapid decline in pleasantness with continued repetition.

This change occurring in our affective responses to music as a result of repetition and increased familiarity has been explained in terms of the interaction between the type of music and the listener's musical background. Due to his increased knowledge of musical construction, the trained listener is able to perceive the simple relationships in popular music much sooner than the untrained listener. Hence such a listener tends to find music lacking complexity relatively uninteresting at an early stage in the sequence of musical repetitions. Trained listeners also reach maximum comprehension of classical music sooner. When this occurs, they again begin to experience unpleasantness.

Of the three factors considered in this study, musical background, familiarity, and type of music, the least information is available about the third. Some information regarding the effect of the type of music on listeners may be obtained from studies of musical preference or taste. Results from these investigations indicate that musical training does influence musical preference. Additional information may be gleaned from the studies on repetition and familiarity. In all, very few of the possible ways of classifying music have been explored. For the most part investigations have concentrated upon the classical - non-classical distinction.

CHAPTER III

THE EXPERIMENTAL DESIGN

In this chapter the subjects who participated in the study, the instruments used to collect the data, the testing procedures, and the statistical treatment of the data are all described.

THE SAMPLE

A total of one hundred and thirty-six individuals participated in this study. With the exception of one person, all were students registered at the University of Alberta during the 1967 - '68 winter session. Of the one hundred and thirty-five subjects who were students, only one was not enrolled in the Faculty of Education. This person was in the Faculty of Commerce. As can be seen from Table I, the University status of these one hundred and thirty-five students varied from freshman to graduate student. Over half of them, however, were registered in either the second or third year of the Bachelor of Education program. Since the one non-student in the sample was a professor, all the subjects were associated with the University.

Subjects for the study were obtained by securing permission from professors interested in this research project to approach their classes and ask for volunteers. Thus, anyone who took part in this investigation did so by his own choice.

TABLE I
SUMMARY OF THE UNIVERSITY STATUS OF THE SUBJECTS

University Status	Number	%
Education 1	16	12
Education 2	42	31
Education 3	34	25
Education 4	9	7
Education 1 After Degree	27	20
Graduate Studies	3	2
Other*	4	3
Total	135	100

*Of these four students, one was in Commerce 1 and one a Special Student in Education. The other two were registered in the Faculty of Education but their year of study was unknown.

All but three of the subjects were drawn from the following courses: Music 210 - Foundations of Music; Music 311 - Band and Orchestra; Ed. CI 213 - Curriculum and Instruction in Elementary School Music; and Educational Psychology 487 - The Measurement of Educational Objectives. It should be noted that four of the five were music courses. Shown in Table II are the number of students who were recruited from each of these courses. With regard to the two subjects drawn from other sources, one was a graduate student in music education and the other a freshman in the Faculty of Commerce. Not included in this table is the subject who was a professor in the Department of Educational Psychology.

Age was not a variable among the subjects. Of the total one hundred and thirty-six, one hundred and three fell into the age category 19 - 25 years inclusive. This figure represents slightly more than three-quarters of the total sample. Fifteen of the thirty-three remaining individuals placed themselves in the 12 - 18 bracket. Hence, only eighteen of the subjects were twenty-six or more years of age. Ninety-three of the subjects were females and forty-three males.

Presented in Table III are the music listening preferences stated by the subjects. The most frequently selected kinds of music were popular and folksong. Classical music was chosen by only twenty per cent of the subjects.

TABLE II
SUMMARY OF THE NUMBER OF STUDENTS DRAWN FROM
EACH COURSE

Name of University Course	Number of Subjects Drawn From Course	%
Music 210	39	29
Music 311	11	8
Ed. CI 213	24	18
Ed. CI 414	16	12
Ed. Psy. 487	43	32
Other	2	1
Total	135	100

TABLE III
SUMMARY OF THE SUBJECTS' LISTENING PREFERENCES*

Type of Music	Number of Subjects Selecting This Type of Music	%
Popular music	56	41
Folksong music	35	26
Classical music	29	21
Country and western music	9	7
Jazz	4	3
No preference stated	3	2
Total	136	100

* This table is based upon information obtained from question K of the questionnaire.

During the first testing session, each subject completed a questionnaire, a copy of which may be found in Appendix B. From the information obtained from this questionnaire, the subjects were divided into categories representing major differences in musical background. Of the four main aspects of musical background included in this schedule, the amount of formal training, both practical and theoretical, was considered the most important. The information obtained from questions D and E on the questionnaire therefore carried the most weight in the categorization process. However, that concerning participation in musical groups, teaching experience, and listening experience was also noted, particularly in borderline cases.

Originally, four categories were established. They were as follows:

1. Category I - those subjects who affirmed they had had no formal training.
2. Category II - those subjects who affirmed they had had from one to six years inclusive of formal practical instruction.
3. Category III - those subjects who affirmed they had received from seven to nine years inclusive of formal practical instruction. In addition these people had all received some formal theoretical training in the

rudiments of music.

4. Category IV - those subjects who affirmed they had received ten or more years of formal practical instruction. In addition these people had also received formal theoretical instruction, the minimum level being harmony.

Under this system of classification, both Categories I and II contained forty-four subjects each. Categories III and IV, however, had only twenty-two and twenty-six subjects respectively. Due to the type of analysis carried out in this study, the number of subjects in both categories III and IV was insufficient. Rectification for this situation was available in two forms. One alternative was to recruit some thirty more subjects having the desired qualifications. Since, in the original recruiting, a definite effort had been made to attract people with such backgrounds, obtaining this number did not seem feasible. Consequently, this step was not taken.

A second alternative was to reconsider the classifications. Further examination revealed that combining the third and fourth categories would not destroy the meaningfulness of the classifications. The subjects who had taken music exams had done so with either the Toronto Conservatory or the Western Board of Music. In both of these boards, there are ten grades preceding the teacher's or performer's examination. In private piano study,

the instrument which all but one of the Category III subjects had studied, one of the heaviest dropout points in both boards is at the end of the grade six music exam. Students continuing beyond this level tend to complete at least the grade eight practical exam, thus leaving them only three more exams to take in order to obtain a teacher's certificate. This was certainly true of the twenty-two people placed in the third category: all but seven had completed at least grade eight. Hence, the classification of the subjects was revised. The final allocations are described below.

1. Category I - Those subjects who, in general, can be said to have received no formal training. A few of these subjects reported having sung in a choir, while others indicated having received instruction in the elementary school.
2. Category II - Those subjects who stated they had received from one to six years inclusive of formal practical instruction. In thirty-three instances this training was taken on the piano. Only six of the individuals in this category acknowledged having taken formal lessons in theory. Hence, the groups may be described as largely having received their theoretical training as part of their instrumental study. With regard to participation in a musical

group, twenty-eight of these subjects asserted having done so. Like Category I, this, in most cases, involved singing in a choir.

3. Category III - Those subjects who had received seven or more years of formal instruction. As noted earlier, all but seven of the total forty-eight subjects in this category held grade eight or better on their instrument. Moreover, almost one-third of these subjects had received private instruction on two or more instruments. While all had engaged in formal theoretical study, the combining process made it impossible to establish harmony as the minimum level. Only two of these people denied having ever performed in a musical group. A change could also be detected in the nature of this participation. While the choir still continued to appear, such groups as bands, symphony orchestras, chamber groups, and folk singing ensembles were also named. One-third of the individuals assigned to this category stated they had taught music privately.

In the ensuing discussion, the subjects in Category I are referred to as Group A, those in Category II as Group B, and those in Category III as Group C.

In order to obtain some indication of the test's reliability, a second testing session was held. Again, attendance at this session was voluntary. Seventy subjects repeated the test. The exact number of subjects in each category for each testing session may be found in Table IV.

THE TEST INSTRUMENTS

Two instruments were used to collect the data in this study: a semantic differential test and a questionnaire on musical background. A copy of the semantic differential test and the instructions used in administering it may be found in Appendix A. A copy of the questionnaire may be found in Appendix B.

Previous studies in which no attempt was made to oversimplify the stimuli or to isolate the various elements of music have used four techniques to obtain information about how a group of listeners responded to music. With regard to the method of introspection, it is generally conceded that subjects must be trained in this technique if worthwhile information is to be obtained. The nature of subject responses creates a variety of problems.¹ For many subjects, how they respond to music is a

¹Robert W. Lundin, An Objective Psychology of Music (second edition; New York: Ronald Press Company, 1967), p. 191.

TABLE IV
COMPARISON OF THE NUMBER OF SUBJECTS IN EACH
CATEGORY FOR EACH TESTING SESSION

Category	Number of Subjects		% Retaking Test
	Session I	Session II	
Category I	44	19	43
Category II	44	26	59
Category III	48	25	52
Total	136	70	51

muddle of verbalizations. Not only are there semantic difficulties in describing one's reactions, but the number of possible reactions which could be reported are unlimited. The time involved in scoring these answers severely limits the number of subjects which can be handled in the experiment. In addition, the danger of the investigator assigning his predispositions to the introspections is great.

With a questionnaire, such as Yingling employed, it is very difficult to disguise the intent of the investigation. In this writer's opinion, this is a serious limitation. The subject of listening to music has proved to be a touchy one, perhaps because of the prevalence of the concept of "higher taste."

This concept may be defined as:

. . . a mixture of the approved masterpieces which carry a historical prestige all their own, plus the conviction that "high" and "good" in the aesthetic world assumes a certain seriousness, a certain permanence, in contrast to the transient, the light, and the simple, which are easily comprehended by the unsophisticated.²

Individuals unable to comprehend these approved masterpieces often attempt to hide this fact for social reasons. Moreover, the problem of lack of precise measurement arises with this type of instrument.

²John H. Mueller, "Music and Education: A Sociological Approach," Basic Concepts in Music Education, Fifty-Seventh Yearbook of the NSSE, Part I (Chicago: University of Chicago Press, 1958), p. 109.

In this writer's opinion, the idea of tests of musical concepts, originated by Mueller, is potentially more useful. As pointed out by Leonard and House, these tests measure music appreciation in terms of the intellectual process of perceiving its formal structure.³ Since most musicians hold the view that appreciation is dependent upon these details, the measurement of them can be said to be a legitimate part of the measurement of appreciation in general. However, it must be remembered that tests of musical concepts are heavily loaded with technical musical terms. Did the student know what the statement meant but was simply unable to tell if it was present in the music, or did he not understand the meaning of the statement? With such tests, this is an important distinction, for a subject is automatically penalized for his lack of vocabulary. A second problem with these tests is that for listeners incapable of discerning these details, one simply learns about these inabilities. This is important information in that it reveals what these listeners were not doing as they listened to the music. However, what they were doing is still unknown.

³ Charles Leonard and Robert W. House, Foundations and Principles of Music Education (New York: McGraw-Hill Book Company, Inc., 1959), p. 354.

Boekelheide's tests of music listening skills are also very useful. With them, it is possible to learn much about an individual's ability to perceive certain elements in the music. Again, however, the emphasis is solely on the intellectual process of perceiving music. If the listener is unable to successfully perform the tasks in these tests, one can say only that when the person listens he does not engage in the kinds of activities included in the tests.

In view of the limitations of the techniques outlined above and the purpose of this study, this investigator chose to use none of the above approaches. Instead, it was decided to use the semantic differential, a measurement technique developed by Charles Osgood as an experimental tool for communications. Tucker's study indicated that it was appropriate for the study of aesthetic objects.⁴ This instrument was chosen for two major reasons. First, disguising the intent of the investigation is possible to the extent that subjects will find it difficult to determine what answers are most socially acceptable. In other words, this instrument has been shown to be capable of getting at underlying attitudes rather than expressed attitudes. Since

⁴William Thomas Tucker, "Experiments in Aesthetic Communications" (unpublished Doctoral Dissertation, University of Illinois, 1955).

this investigator wished to find out how the individuals responded to the music rather than how they felt they should have responded, this was a highly desirable characteristic. Second, the semantic differential has been repeatedly demonstrated to possess sensitivity, thus allowing an observer to discriminate between highly similar concepts. This, too, was considered advantageous.

The Semantic Differential

Rather than a particular test, the semantic differential is a "highly generalizable technique of measurement."⁵ Basically it is a series of seven point scales with polar terms presented as follows:

Good : : : : : : Bad
 1 2 3 4 5 6 7

A series of such scales may be used to judge a concept or an object: the observer simply checks the scale point which seems most appropriate to him, keeping in mind that the following meanings should be attributed to each point of the continuum:

- | | |
|-----------------------------------------------|------------------|
| 1) extremely good | 7) extremely bad |
| 2) quite good | 6) quite bad |
| 3) slightly good | 5) slightly bad |
| 4) neither good nor bad; equally good and bad | |

⁵Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957), p. 76.

In this study, the semantic differential as described above was slightly modified. Rather than a seven point scale, a five point one was employed. The decision to use a five point scale was made for reasons of convenience and economy of time. Scoring and punching by hand computer cards for an estimated two thousand tests seemed a laborious and time consuming task. It was learned that if the semantic differential was printed upon IBM Answer Sheets, the tests could not only be scored but the computer cards automatically punched on the IBM 1230 Optical Scorer in the Division of Educational Research. These IBM general purpose answer sheets, however, are designed with four columns of five-point answer blanks. The rather wide blank spaces between the columns precluded grouping seven answer spaces together. Hence, in order to take advantage of a quick and efficient method of having the data scored and punched on computer cards, it was necessary to use a five point scale. Undoubtedly, its use resulted in some loss of sensitivity for the instrument. However, the gain in reliability which could be expected to result from utilizing a five point scale seemed to offset this disadvantage.

There are neither standard concepts nor scales for a semantic differential. Instead, these are dependent upon the purposes of the particular research study.

Concepts - Musical Excerpts. The concept is the stimulus to which the subject makes a checking response.⁶ While concepts are most often verbal, they may also be nonverbal, examples being aesthetic stimuli. In this study, each musical excerpt was a concept. A total of fourteen excerpts, eight of which were taken from classical selections and six of which were taken from popular music, were presented to the subjects. A list of the compositions from which excerpts were taken along with other pertinent information about them may be found in Appendix C. The number of concepts was limited to fourteen largely due to time element considerations. It was felt that, for individuals lacking musical training, a listening period extending beyond an hour would probably be very tedious. Moreover, since participation in the study was voluntary, it was necessary to avoid making the length of the time involved too extensive.

In selecting this music, the following served as criteria:

1. Use of works from the orchestral repertoire only.

This type of music was chosen because of the proliferation of symphonic orchestras in this century and the corresponding ascent of its music to an exalted position. While the present - day orchestra seems to be quite a natural arrangement of the single

⁶Ibid, p. 77.

parts and groups, its arrangement was obtained only after a period of organization extending from 1600 to 1750, the Late Renaissance and Baroque eras.⁷ Thus, it was decided to exclude compositions written prior to 1750, the date generally accepted as marking the emergence of the orchestra in its present combination.

2. Use of orchestral selections which are not concerti.

The presence or absence of a soloist could be an important influence upon the listener's reactions. It was therefore considered desirable to eliminate this variable.

3. Use of both classical and popular selections.

4. Use of classical selections written prior to 1900.

This criterion eliminated the inclusion of any twentieth century music. This decision was made after considering the variety in the music written in this period alone and the fact that only eight classical selections of music were to be presented to the listeners.

5. Use of works of recognized composers. This criterion particularly referred to the classical selections.

⁷Paul Bekker, The Orchestra (New York: W. W. Norton and Company, 1963), p. 15.

John Mueller's book, The American Symphony Orchestra, was used as a guide when determining which composers and what compositions rank high on this continent.⁸

6. Use of a musical excerpt in which one mood predominates.

Due to changes in structural content, it is possible for a given movement to portray several moods. It was felt that the presence of widely contrasting moods within an excerpt could produce conflicting reactions, thus making it difficult for subjects to describe their reactions.

7. Choice of well-known musical selections to increase the possibility of subjects being previously familiar with some of the excerpts.

8. Choice of musical excerpts that contain a complete musical idea.

9. Use of excerpts of uniform length, a time limit of four minutes having been chosen. As can be seen from the tables in Appendix C, this criterion was rather imperfectly attained. It was found that popular selections in their entirety tend to be rather short,

⁸John H. Mueller, The American Symphony Orchestra (Bloomington: Indiana University Press, 1951).

often less than three minutes. Presenting a complete musical idea from a classical selection however, frequently cannot be done in less than four minutes.

10. Use of excerpts played at a speed somewhere in the range of 100 to 152 quarter notes per minute. In view of the findings from Getz' study, controlling, to some extent, for the influence of widely varied tempos was considered desirable.⁹

To provide facility and speed of handling during the experimental sessions, the excerpts were pre-recorded on two tapes. The use of two tapes enabled the investigator to give the subjects a five minute break at almost the midpoint of the session. Since this researcher was interested in what the subjects were doing while they listened rather than what they could remember about their listening activities, the subjects were asked to complete the test while the music was playing. The exact moment when a subject began answering the test was left up to him; however, during the instruction period at the beginning of the session, the subjects were advised to allow approximately a minute to elapse before starting. Although a thirty second time interval

⁹Russell P. Getz, "The Influence of Familiarity Through Repetition in Determining Optimum Response," (unpublished Doctoral Dissertation, Pennsylvania University, 1963).

was left between excerpts, in administering the test it was found that the test could be completed in nearly all cases by the end of the excerpt. As a consequence, the tape was stopped at the end of the excerpt and immediately turned ahead to the next one rather than letting the tape run through the thirty seconds of silence. If a subject requested a longer pause, this, of course, was given.

Determining the order in which the concepts were presented was based on two considerations: tempo of the selection and the classical or popular nature of the selection. With regard to the former, an attempt was made to avoid sudden and therefore perhaps startling tempo changes between selections. It was hoped that by doing this the subjects would not be so conscious of this factor. At the same time, classical and popular selections were intermingled in an attempt to provide variety in the program. The exact order in which the selections were presented is given in the table in Appendix C. In order to prevent high prestige value names such as Beethoven and Mozart from eliciting prejudice, both the names of composers and of compositions were concealed.

Scales. Each factor or dimension of the semantic space is represented by bipolar scales or verbal opposites which are adjectives. Ideally, one would like to use one specific scale to represent each factor. In order to do this, each scale would have to be perfectly aligned with or loaded on its factor and perfectly reliable. Since, in practice, specific scales are

neither perfectly aligned with factors nor perfectly reliable, a small sample of closely related scales is used to represent each factor. Generally, three scales per factor are included.

In past studies, three major factors have been identified. They are an evaluative factor, a potency factor, and an activity factor.¹⁰ Scales typically having high loadings on the evaluative factor include good - bad, clean - dirty, valuable - worthless, pleasant - unpleasant; on the potency factor, strong - weak, large - small, thick - thin; and on the activity factor, active - passive, hot - cold, fast - slow.

Since the three factors mentioned above have been isolated in a number of other analyses, it was deemed beneficial to include scales which would represent these factors on the semantic differential constructed in this study. However, as noted by Tucker, it is quite possible that the polar terms derived from what were essentially social judgments may not adequately represent the same factors when used in the area of aesthetics.¹¹ Moreover, other factors, perhaps unidentified as yet, could be of major import in this new area, while one or more of those already identified could shrink in relative importance.¹² When constructing the semantic differential, it therefore seemed necessary to

¹⁰Osgood, Suci, and Tannenbaum, op. cit., p. 325.

¹¹Tucker, op. cit., p. 46.

¹²Ibid.

make provision for these possibilities.

In all, thirty-three scales were placed on the semantic differential.¹³ These scales were selected after examining tests employed in other areas, Tucker's study, the introspective reports published in the studies reviewed in Chapter II, and the program notes provided in texts or on actual concert programs. In addition to the considerations noted above, other factors had to be taken into account. One of the most important of these was the sample to whom the test was to be administered. This was to include not only rather extensively trained musicians but also individuals with little or no musical background. As a consequence, terms which are highly technical had to be excluded. Representatives of this classification are consonant and dissonant, romantic and classical in the historical sense, homophonic and polyphonic, and syncopated. Another of these considerations was that some terms are exceedingly difficult to provide with satisfactory opposites. Lyrical and dreamy are terms illustrating this problem. A third problem which was encountered was that certain terms are hard to cast into adjectival form. Finally, many terms appeared to indicate the same thing. Pleasant, appealing, enjoyable, interesting, and satisfying provide examples of this.

¹³There were in fact thirty-four scales on the test. However, the first scale, familiar - strange, was placed upon the test to obtain an indication of the subjects' degree of familiarity with each excerpt. This scale was not included in the factor analysis of the data.

Form II of the graphic - scale method was used to present the test to the subjects.¹⁴ This meant one IBM Answer Sheet was used for every concept. Each subject therefore completed a total of fourteen such answer sheets. It also meant that the ordering of the scales and the polarity direction, once chosen, had to be kept constant. The format of the test was therefore always exactly the same. Both the order of the scales on the test and the polarity of the scales was decided in a random fashion.

The Questionnaire on Musical Background

Like the semantic differential, this instrument was also constructed by the investigator. Its purpose was to ascertain the musical backgrounds of the individuals who participated in the study. Of the aggregate of their possible experiences with music, four major aspects were included upon the questionnaire. They were formal training, both practical and theoretical, experience performing in musical groups or organizations, teaching experience, and listening experience. As noted earlier, this information, particularly that on formal training, was used to place the subjects in one of the three categories of musical background. These were described earlier in this Chapter.

¹⁴Osgood, Suci, and Tannenbaum, op. cit., pp. 81 - 82.

The first part of the paper discusses the importance of the
theoretical framework in the study of the
relationship between the variables. The second part
presents the empirical results of the study. The third part
discusses the implications of the findings for the
theory and practice of the field.

The results of the study show that there is a significant
positive relationship between the variables. This finding
is consistent with the theoretical expectations. The
implications of the findings for the theory and practice
of the field are discussed. The study has several
limitations and future research is needed to
address these issues.

The study has several limitations. First, the sample size
was relatively small. Second, the study was
cross-sectional. Third, the study did not control for
all possible confounding variables.

In conclusion, the study provides evidence for the
theoretical framework. The findings have implications
for the theory and practice of the field.

THE TESTING PROCEDURES

Due to student timetable conflicts, it was impossible to hold only one testing session for the first administration of the test. In all, five sessions were held during the fourth week of October, 1967. The same problem arose with the second administration of the test. In this case, four sessions were held near the end of November, 1967. Hence there was a lapse of approximately a month between the two administrations of the test. Exactly the same test was given both times. Thus, the experimental procedure of test - retest after an interval of time was utilized in this investigation.

TREATMENT OF DATA

The data obtained from the first administration of the semantic differential was examined to determine if:

1. there were differences in the factor patterns for individuals with the three kinds of musical backgrounds described earlier in this Chapter,
2. there were differences in the factor patterns of individuals with a given musical background for excerpts of classical and popular music,
3. there were differences in the factor patterns of the subjects for familiar and strange excerpts,

4. there were differences in the factor patterns of individuals with a given musical background for familiar and strange excerpts.

In order to do this, two statistical treatments were necessary. First, the data had to be factor analyzed. Factor analysis is a mathematical technique, the function of which is to show in quantitative terms the pattern of linkages among variables. It is based upon the correlation coefficient, a mathematical statement of the degree of agreement between two series of measurements.¹⁵ In factor analysis a series of test scores or other measures are intercorrelated to determine the number of dimensions the test space occupies, and to identify these dimensions in terms of traits or other general concepts.¹⁶ A basic assumption of factor analysis is that a battery of intercorrelated variables has common factors running through it and that the scores of an individual can be represented more economically in terms of these reference factors.¹⁷ Factors may be thought of as hypothetical variables which in various combinations account for or explain the variations in various kinds of human behavior.

¹⁵C. J. Adcock, Factorial Analysis for Non-Mathematicians (Carlton: Melbourne University Press, 1954), pp. 8 - 9.

¹⁶Benjamin Fruchter, Introduction to Factor Analysis (Princeton: D. Van Nostrand Company, Inc., 1954), p. 2,

¹⁷Ibid, p. 44.

Hypothesis I required that three separate factor analyses, one for each of the three groups of listeners, be carried out. For Hypothesis II, six factor analyses were done, since within each type of musical background there were two sub-classes, classical and popular. Hypothesis III required only two factor analyses, one for the excerpts which were designated familiar and one for those designated strange. As noted earlier, an excerpt was classed as familiar only if spaces one or two on the differential were marked. Hypothesis IV, like Hypothesis II, also required six factor analyses. Thus, a total of seventeen factor analyses were obtained. These computations were done through the use of the program FA 1001. It is based upon the work of Harry H. Harman.¹⁸

In order to detect the similarities and differences among the factor patterns for the various groups indicated in the hypotheses, it was necessary to engage in factor matching. This then was the second statistical technique employed. For Hypothesis I, three such comparisons were made: Group A with Group B, Group A with Group C, and Group B with Group C. To cover all possible matches for Hypothesis II, the nine comparisons shown in Figure 1 were necessary. Hypothesis III required only one factor match. Like Hypothesis II, the final Hypothesis

¹⁸Harry H. Harman, Modern Factor Analysis (Chicago: University of Chicago Press, 1960), p. 137.

Classical Excerpts

Popular Excerpts

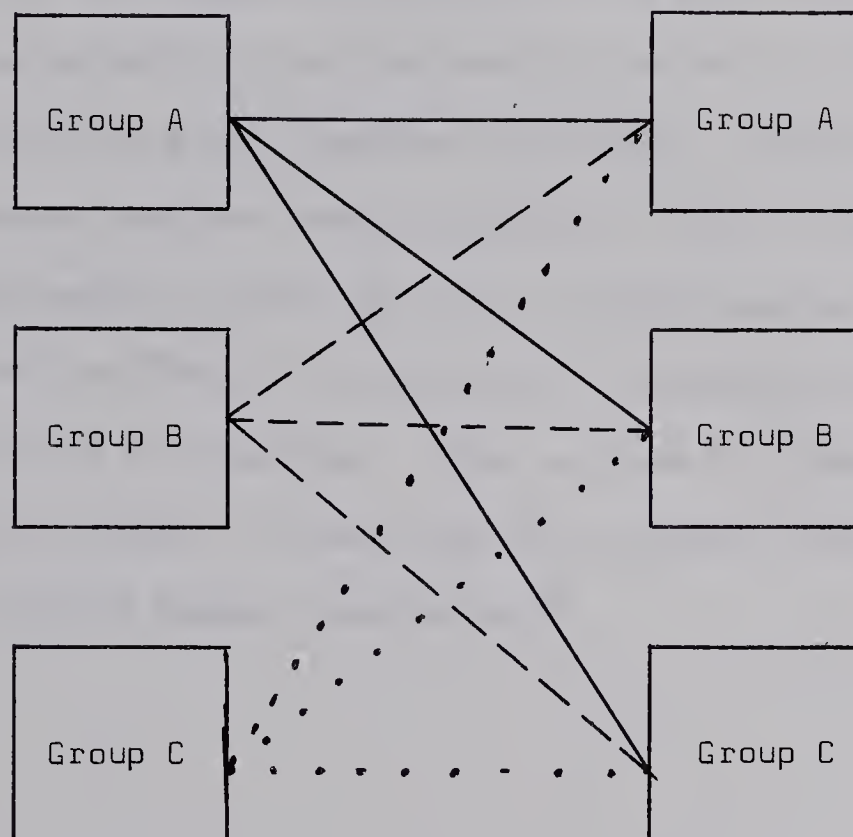


FIGURE 1

FACTOR MATCHES FOR HYPOTHESIS II

required nine comparisons be made. These are schematically represented in Figure 2. To carry out this step of the analysis of data, the program RO 100 was utilized. It is based upon the work of Yrjö Ahmavaara.¹⁹

In addition to the examinations just described, the reliability of the semantic differential was also investigated. To obtain an estimate of the instrument's reliability, two sets of data, these being the responses the seventy subjects made at the two testing sessions, were correlated. Since a program which would handle the data the way it had been punched on the cards was not available in the Division of Educational Research's library, one had to be written. This was done by a member of the Research Division. It was based on Ferguson's discussion of Pearson Product Moment Correlation.²⁰

¹⁹Yrjö Ahmavaara, "Transformation Analysis of Factorial Data," Helsinki, 1954.

²⁰George A. Ferguson, Statistical Analysis in Psychology and Education (second edition; New York: McGraw-Hill Book Company, Inc., 1959), p. 112.

Familiar Excerpts

Strange Excerpts

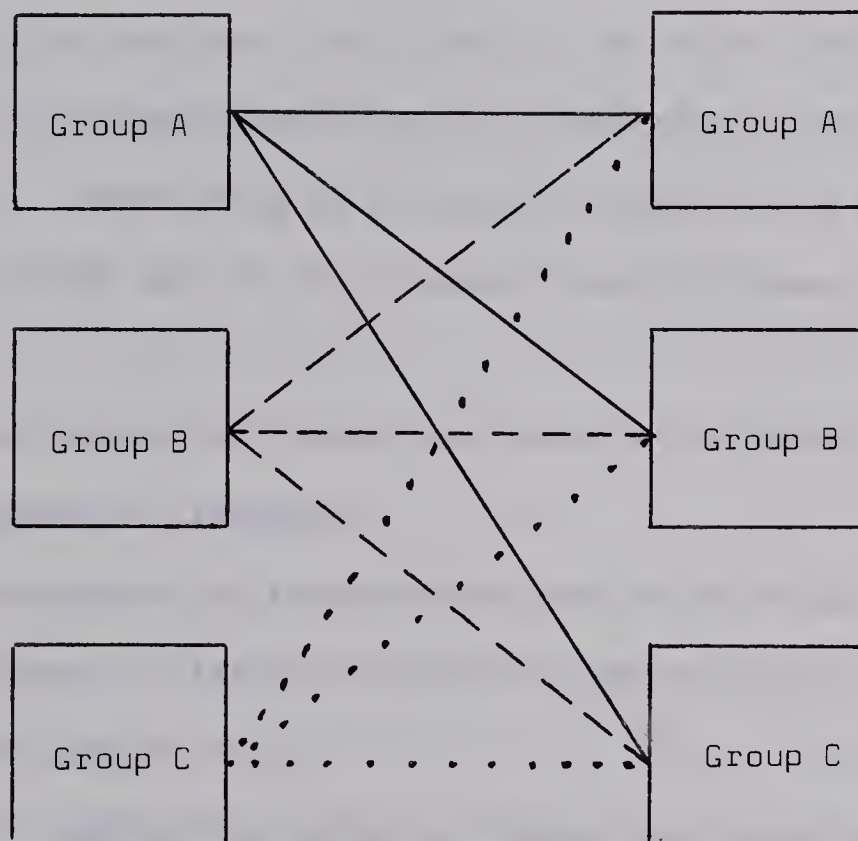


FIGURE 2

FACTOR MATCHES FOR HYPOTHESIS IV

CHAPTER IV

ANALYSIS OF THE DATA AND INTERPRETATION

In this chapter the data obtained from the testing program carried out with a group of university students having differing musical backgrounds will be examined. The chapter has been organized in five sections, the first four of which contain a discussion of the hypotheses which were postulated at the outset of the study. Listed below in the order in which these discussions occur in the text is the purpose of each of these four sections:

1. to compare the factor structures of the three groups of listeners,
2. to compare the factor structures of the three groups of listeners for both classical music and popular music,
3. to compare the subjects' factor structures for both familiar excerpts and strange excerpts,
4. to compare the factor structures of the three groups of listeners for both familiar excerpts and strange excerpts.

The fifth section of this chapter is devoted to a discussion of the semantic differential's reliability as indicated by the test-retest method.

Since the four hypotheses were all tested by the same two statistical techniques, factor analysis and factor matching, the results in the first four sections of this chapter have been similarly reported to achieve a more parsimonious presentation and to facilitate interpretation.

HYPOTHESIS I

There is no relationship between the musical background of an individual and his semantic factor responses to selected excerpts of music.

Method

To test this hypothesis, the subjects' responses to the fourteen musical excerpts were grouped into the three categories of musical background described in Chapter III. The responses of the individuals in each category were then separately factor analyzed according to the procedures outlined by Harman. Presented in Tables V, VI, and VIII are the factor loadings which were generated in these analyses. The factors which emerged in these three analyses were then labelled. Unless otherwise indicated, each factor's name reflects the unifying theme of the scales for which loadings of 0.5 or greater were found.

Upon completion of the factor analyses, factor matching was engaged in, three comparisons being made. They were Group A's factor structure with Group B's factor structure, Group A's factor structure with Group C's factor structure, and Group B's

factor structure with Group C's factor structure. The results of these factor matches are reported in Tables VII, IX, and X.

Factor matching is a technique of comparison. When making such comparison, the factor structure of one group is rotated in all planes simultaneously against a second group's factor structure which is held stationary. The purpose of the rotation is to find, for the factors being rotated, the position which will provide the closest possible fit between them and the factors being held stationary. When labelling the factor matching tables, the first group identified in the title is always the group whose factor structure was rotated. The group whose factor structure was held stationary is always the second group identified in the title of a table.

When interpreting the factor matching results, the signs before the entries in the tables may be disregarded. The higher the entry, the greater the fit between the factors involved. Entries of 0.8 or greater may be taken to indicate a close approximation between the factors. For entries of 0.9 or greater, the correspondence between factors is very strong. However, even for entries as high as this, it should be remembered that an exact fit was not obtained: there will be some differences between the factors involved. The lower the entry is below 0.8, the lower the degree of correspondence between the factors involved. Hence, an entry of $-.0390$ indicates very little similarity, while one of $.6697$

indicates some factorial similarity, though this is not particularly strong.

Results and Discussion

Group A. When factored, the responses of Group A generated six factors. (See Table V.) Scales having high loadings on Factor I were beautiful - ugly, good - bad, melodic - unmelodic, intimate - remote, pleasant - unpleasant, chaotic - ordered, sincere - insincere, and valuable - worthless. The unifying theme of this cluster of scales would seem to be appraisal. Hence, Factor I was labelled Evaluation. It accounted for sixteen per cent of the total variance and twenty-nine per cent of the common variance.

An evaluation factor was located both by Osgood in his studies involving verbal concepts and by Tucker in his study of the factor structures in the judgments of both artists and non-artists.¹ Its appearance in this study for this group of listeners indicated that, as these subjects listened, they engaged in critical activity. In view of the group's lack of musical background, this willingness to judge a musical selection as, to take a few examples, valuable, or sincere, or melodic is

¹Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957); William Thomas Tucker, "Experiments in Aesthetic Communications" (unpublished Doctoral Dissertation, University of Illinois, 1955.)

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TABLE V FACTOR LOADINGS FOR GROUP A

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
Pleasant - Unpleasant	.597	.651	.231	.170	.289	-.089	-.007
Non-descriptive - Descriptive	.556	-.081	-.085	-.710	.035	.163	.099
Vibrant - Still	.461	-.141	-.407	.225	.457	-.124	-.024
Repetitive - Varied	.699	-.065	.164	-.075	.162	.092	.792
Yellow - Blue	.557	.115	.045	.079	.724	.010	.106
Happy - Sad	.692	.298	.124	.054	.760	-.074	.047
Chaotic - Ordered	.521	-.595	-.337	-.033	.019	.057	-.220
Valuable - Worthless	.572	.553	-.047	.480	.114	-.018	-.143
Passive - Active	.615	-.016	.238	-.210	-.214	.683	.043
Colorful - Colorless	.510	.290	-.065	.536	.269	-.228	.099
Meaningless - Meaningful	.459	-.398	.021	-.547	-.026	.013	-.016
Simple - Complex	.530	.084	.619	-.086	.108	.126	.324
Relaxed - Tense	.609	.486	.573	.053	.198	.050	-.006
Unrhythmic - Rhythmic	.484	-.491	-.233	-.280	-.026	.318	-.091
Serious - Humorous	.652	-.059	-.378	.149	-.640	.271	.004
Slow - Fast	.559	-.035	.238	.027	-.528	.469	-.049
Large - Small	.493	-.084	-.412	.471	-.063	.266	.138
White - Black	.617	.379	.338	.129	.565	.109	-.109
Pictorial - Non-pictorial	.585	.239	-.009	.717	.111	-.029	.021
Unique - Commonplace	.431	.193	-.537	.181	-.113	.124	-.209
Emotional - Rational	.367	.412	-.181	.144	-.071	.258	.268
Ugly - Beautiful	.733	-.782	.002	-.207	-.234	.022	.153
Sincere - Insincere	.479	.566	-.102	.301	-.006	.239	-.021
Red - Green	.456	.023	-.338	.020	-.112	-.322	.474
Unmelodic - Melodic	.571	-.696	-.081	.175	-.142	.170	.021
Intimate - Remote	.570	.672	.203	.152	.147	.180	.037
Bad - Good	.700	-.750	.094	-.279	-.201	.061	.086
Strong - Weak	.551	.198	-.528	.445	-.091	.045	.156
Soft - Loud	.572	.261	.681	.080	-.041	.146	-.103
Dark - Bright	.647	-.468	-.218	-.116	-.605	.021	.029
Panoramic - Non-panoramic	.458	.200	-.140	.623	.029	.081	-.055
Mild - Intense	.630	.105	.755	-.078	.134	.131	-.092
Unimaginative - Imaginative	.555	-.375	.224	-.587	-.107	.060	.068
	18.490	5.310	3.629	3.601	3.203	1.443	1.305

most interesting. Apparently, neither their lack of experience with music nor their lack of knowledge about music served to deter responding in this way.

Also of interest was the linkage pattern among the terms of the scales loading high on Evaluation. Stated positively, it was beautiful, good, melodic, intimate, pleasant, ordered, sincere, and valuable. From this list, it seems fair to conjecture that if, in the opinion of these listeners, the music could be said to be melodic, intimate, ordered, and sincere, then, they would probably describe the music as beautiful, good, and valuable, and their listening experience as pleasant. If this inference is true, then, the unpleasantness reportedly associated with listening to contemporary music by so many unsophisticated listeners may simply be a function of their inability to find melody, intimacy, order, and sincerity in twentieth century music. Due to the limitations of the sample noted in Chapter I, this explanation can only be viewed as highly tentative.

As can be seen from Table V, the second factor which was isolated when the responses of Group A were factor analyzed had high loadings on the mild - intense, soft - loud, simple - complex, relaxed - tense, unique - commonplace, and weak - strong scales. That these scales grouped together would seem to suggest that, as the members of Group A listened to the fourteen musical excerpts, they noted and responded to strength in the music.

Hence, the name Potency was give to Factor II. It accounted for eleven per cent of the total variance and twenty per cent of the common variance.

Again, the way in which the terms in these six scales were related is elucidating. It was intense, loud, complex, tense, unique, and strong. From this list, it would appear that, for these listeners, the dynamic level of the music was of some consequence. For them to describe a selection as intense or strong, it had to be loud rather than soft. Moreover, these listeners apparently tended to associate loudness in music with both complexity and uniqueness. If this mental set is one held by untrained listeners in general, then music teachers might well take this into account when selecting music for their courses.

Entries of 0.5 or better occurred for Factor III on the scales pictorial - non-pictorial, descriptive - non-descriptive, panoramic - non-panoramic, imaginative - unimaginative, meaningful - meaningless, and colorful - colorless. Since these scales are concerned with the connotative power of the music, this factor was called Imagery. It also accounted for approximately eleven per cent of the total variance and nineteen per cent of the common variance.

As will be recalled from the Review of Literature, a number of theorists and researchers have noted the tendency

among some listeners to attach concrete meanings to music.²

This mode of responding was evident in Group A's responses.

It is rather interesting that the meaningful - meaningless dimension came out most strongly on Factor III. Why is a matter for conjecture. One explanation may be provided by the connective pattern for the terms of the scales involved. It was pictorial, descriptive, panoramic, imaginative, meaningful, and colorful. Perhaps for these listeners music's meaningfulness resides in its pictorial, descriptive, panoramic, imaginative and colorful qualities. Should this be true, then, failure to find such characteristics in the music would lead them to judge the music to be meaningless.

Examination of the scales having loadings greater than 0.5 on Factor IV revealed that it combined two elements, mood and color. That the specific color scales came out here rather than on Imagery is somewhat puzzling. This phenomenon seems to negate the idea that colors functioned as a source of concrete meaning for these listeners. Instead, it appears that the mood which the listeners assigned to an excerpt called to mind colors. For purposes of reference, Factor IV was labelled Mood - Color. It accounted for ten per cent of the total variance and seventeen

²See in particular the discussion in Chapter II for Copland, Tipton, Myers, Lee, and Yingling.

per cent of the common variance. Factors III and IV were therefore almost of equal weight.

Factor V had only one scale, passive - active, which met the minimum loading requirement. This was also true of Factor VI, the scale in this case being repetitive - varied. Lowering the acceptance level to scales in the 0.4 bracket produced only one more scale for each factor. Hence, even after this step was taken, the nature of these factors remained ambiguous. They were therefore not labelled. Together, these two factors accounted for eight per cent of the total variance and fifteen per cent of the common variance.

Group B. When factored, Group B's responses to the fourteen musical excerpts generated a total of five factors which together accounted for fifty-four per cent of the total variance. (See Table VI.) As in the factor structure of Group A's responses to the music, the first two of these factors were, in order of their appearance, Evaluation and Potency. Comparison of the scales having factor loadings of 0.5 or greater on Evaluation revealed that Group B's not only included all eight of the scales which occurred for Group A but also four others. These four additional scales were meaningful - meaningless, rhythmic - unrhythmic, relaxed - tense, and panoramic - non-panoramic. Two other scales, rational - emotional and imaginative - unimaginative,

TABLE VI FACTOR LOADINGS FOR GROUP B

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V
Pleasant - Unpleasant	.558	.668	-.185	-.236	-.016	.150
Non-descriptive - Descriptive	.412	-.310	-.011	.127	-.543	.073
Vibrant - Still	.540	.039	.507	-.497	.181	.037
Repetitive - Varied	.488	.156	.066	-.125	-.665	-.035
Yellow - Blue	.454	.086	-.091	-.364	-.014	.553
Happy - Sad	.660	.327	-.019	-.610	-.048	.422
Chaotic - Ordered	.458	-.575	.315	-.111	.102	.067
Valuable - Worthless	.539	.667	.024	-.147	.268	.013
Passive - Active	.565	-.094	-.430	.568	-.201	-.089
Colorful - Colorless	.573	.534	.237	-.386	.287	.010
Meaningless - Meaningful	.584	-.706	-.119	.147	-.220	.047
Simple - Complex	.481	.147	-.440	-.081	-.508	.032
Relaxed - Tense	.623	.512	-.529	.083	-.140	.234
Unrhythmic - Rhythmic	.512	-.614	-.003	.291	.225	.001
Serious - Humorous	.598	-.045	.207	.702	.105	-.221
Slow - Fast	.622	.097	-.232	.742	.051	-.070
Large - Small	.438	-.044	.638	.131	.075	.077
White - Black	.573	.304	-.297	-.264	.087	.561
Pictorial - Non-pictorial	.420	.453	.297	-.072	.347	.011
Unique - Commonplace	.344	.098	.252	.008	.519	-.042
Emotional - Rational	.365	.495	.149	.152	.273	-.023
Ugly - Beautiful	.719	-.811	.119	.036	.014	-.213
Sincere - Insincere	.518	.536	.173	.374	.148	.196
Red - Green	.553	.055	.247	-.052	-.044	.696
Unmelodic - Melodic	.534	-.718	.020	.012	.102	-.083
Intimate - Remote	.604	.742	-.188	.063	.033	.111
Bad - Good	.643	-.765	.061	.089	-.009	-.214
Strong - Weak	.626	.339	.674	.095	.171	.134
Soft - Loud	.631	.252	-.716	.210	.017	.099
Dark - Bright	.636	-.418	.210	.485	.036	-.425
Panoramic - Non-panoramic	.438	.507	.219	.040	.344	.114
Mild - Intense	.566	-.028	-.733	.106	-.098	.083
Unimaginative - Imaginative	.564	-.491	-.212	.186	-.482	-.105
	17.839	6.930	3.686	3.116	2.272	1.834

were very close to the required 0.5 loading. These six additional scales were all judgmental in nature. They simply enlarge the scope of the evaluations made by Group B. Evaluation accounted for twenty-one per cent of the total variance and thirty-nine per cent of the common variance. These figures represent a substantial increase in the weight of this factor for Group B as compared to Group A.

Potency was the second factor which emerged for Group B. Scales having high loadings on this factor included mild - intense, soft - loud, weak - strong, small - large, relaxed - tense, and vibrant - still. Only two of these six scales, large - small and vibrant - still, failed to load high on Group A's Potency factor. In both groups, the listeners appeared to be strongly aware of how loud the music was. Soft music was viewed as being mild, weak, and relaxed by the members of both Groups. Conversely, loud music for these same listeners was thought of as intense, strong, and tense. As will be recalled, the listeners in Group A exhibited a tendency to associate a loud dynamic level with complexity and uniqueness, and a soft level with simplicity and commonplaceness. This predisposition was not held by the subjects in Group B. But for the last feature just discussed, the degree of correspondence between the second factor isolated for these two groups appeared rather high. Confirmation of this was provided by the factor match of Group A with Group B. (See Table VII.) Potency accounted for

TABLE VII
FACTOR MATCH FOR GROUP A WITH GROUP B

Factors	Group B				
	I	II	III	IV	V
I	.9519	-.1795	.1607	-.0792	.1722
II	.0742	-.9521	.0564	-.2708	-.1070
III	.5266	.4400	-.1442	.7089	-.0762
Group A IV	-.0390	.0783	-.8343	-.0259	.5294
V	-.0795	-.1662	.9734	.0770	.1127
VI	.3147	.3836	-.0633	-.8315	.2416

eleven per cent of the total variance and twenty-one per cent of the common variance. Thus, the weight of this factor for Group B was considerably less than that of Factor I.

The third factor to be isolated in the factor analysis of Group B's responses was defined by the scales slow - fast, serious - humorous, happy - sad, and active - passive. In addition, a factor loading just slightly less than 0.5 occurred for the vibrant - still scale. These scales involve two elements of music, rhythm and mood. Presumably these listeners were aware of a particular aspect of rhythm, namely, the speed at which the various musical excerpts were played. In view of Getz' findings, this response to tempo was not surprising.³ What is more noteworthy was that this awareness of tempo was found in conjunction with an awareness of mood. The assimilation of these two elements perhaps indicates that, when attempting to determine the mood of a selection, the most important element in the music's structural content was, for these listeners, tempo. In other words, the tempo of a selection may well have signified the music's mood, a fast tempo being a sign of happiness or humor, and a slow tempo a sign of sadness and seriousness. For purposes of reference, Group B's third factor was labelled Mood - Tempo.

³Russell Paul Getz, "The Influence of Familiarity Through Repetition In Determining Optimum Response" (unpublished Doctoral Dissertation, State University of Iowa, 1959.)

With regard to the topic of rhythm, another interesting feature of the factor analysis of Group B's responses was that rhythmic considerations came out strongly twice. The specific nature of those of Factor II have just been discussed. Rhythm was also one of the dimensions on which the music was evaluated. This double occurrence is perhaps indicative of a strong awareness of rhythm on the part of these listeners.

From Table VII it can be seen that Factor III for Group B was similar to both Factors IV and V in Group A. Due to the extremely limited number of scales with high loadings, Factor V in Group A was not labelled. Group A's fourth factor was a Mood one in which colors showed up. For Group B, Color emerged as a separate factor other than in conjunction with some other element. (See Factor V, Table VI.) This may mean that, as the individuals in Group B listened, they made a conscious search for color. There was no indication that the listeners in either of the other two groups engaged in such an activity.

Of the five factors generated by the factor analysis of Group B's responses, the most ambiguous was Factor IV. Four scales, repetitive - varied, descriptive - non-descriptive, unique - commonplace, and simple - complex, loaded high on it. Just what theme binds these four scales together is not readily apparent. It may be that this factor represents a Simple - Complex dimension. Assuming that it does, two observations can be made. First, these

listeners associated simplicity with repetition. That repetition in music serves to reduce its complexity is a proposition to which composers have long subscribed. As Fleming and Veinus note, repetition can be considered the first principle of organization in an extended musical composition.⁴ Second, these listeners also saw lack of description as a sign of simplicity. This idea represents a reversal of the thinking stated in much of the literature on the topic of description in music. Most writers have put forth the view that, for a large proportion of listeners, descriptions, associations, and programmes serve the function of making the music more intelligible and thus simpler. The Group B listeners would seem to deny this. Instead, they seem to take the position that the music is more likely to be simple when description is not present. Hence, a programme such as that provided by Berlioz to his Symphonique Fantastique or by Moussorgsky to his Pictures at an Exhibition would serve only to complicate the act of listening for these subjects.

Examination of the factor match between Groups A and B, revealed that the fourth factor in Group B fitted with both of the third and sixth factors in Group A. (See Table VII.) Factor

⁴William Fleming and Abraham Veinus, Understanding Music Style, Structure, and History (New York: Henry Holt and Company, 1958), p. 102.

III for Group A was Imagery; Factor VI, due to the paucity of scales with high loadings, was not labelled. Thus Group B's fourth factor represents a converging of what were two separate factors for Group A. It accounted for seven per cent of the total variance and thirteen per cent of the common variance.

Group C. The factor analysis of Group C's responses produced a solution in which five factors were isolated. (See Table VIII.) Together, these five factors accounted for fifty-six per cent of the total variance. It will be recalled that the six factor solution for Group A also accounted for fifty-six per cent of the variance, while the five factor solution for Group B accounted for slightly less, fifty-four per cent of the total variance. In this respect, then, the solutions were highly similar.

For the five factors in the solution for Group C, factorial similarity with the other two groups was found in three forms:

1) the same factor occurring in all three groups, 2) the same factor occurring in one of the other two groups, and 3) a factor in Group C combining aspects of factors from both Groups A and B.

Group C's Factor I provides an illustration of factorial similarity occurring among all three groups of listeners. It was for these listeners, as it had been for the other two groups, Evaluation. None of these three Evaluation factors were exactly

TABLE VIII FACTOR LOADINGS FOR GROUP C

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V
Pleasant - Unpleasant	.567	.618	.190	-.327	.191	-.074
Non-descriptive - Descriptive	.328	-.222	.064	.068	-.518	-.035
Vibrant - Still	.563	.132	-.521	-.424	.175	.252
Repetitive - Varied	.498	-.030	.080	-.076	-.042	-.695
Yellow - Blue	.460	.066	-.007	-.664	.069	-.102
Happy - Sad	.690	.182	.139	-.791	.063	-.091
Chaotic - Ordered	.526	-.481	-.195	.040	.193	.467
Valuable - Worthless	.574	.712	-.157	-.023	.156	.133
Passive - Active	.589	-.100	.535	.507	-.141	-.124
Colorful - Colorless	.560	.404	-.263	-.326	.436	.175
Meaningless - Meaningful	.592	-.613	.125	.073	-.440	-.046
Simple - Complex	.618	-.043	.510	-.070	-.056	-.590
Relaxed - Tense	.588	.229	.646	-.157	.058	-.299
Unrhythmic - Rhythmic	.418	-.471	.003	.271	-.050	.346
Serious - Humorous	.625	.060	-.232	.725	-.017	.204
Slow - Fast	.557	.064	.343	.653	.033	-.090
Large - Small	.547	.139	-.621	.267	.152	.219
White - Black	.603	.339	.379	-.585	.052	-.009
Pictorial - Non-pictorial	.622	.208	-.070	-.122	.747	-.027
Unique - Commonplace	.511	.283	-.293	.115	.288	.499
Emotional - Rational	.537	.109	-.005	.109	.710	.095
Ugly - Beautiful	.679	-.758	-.117	.160	-.248	-.058
Sincere - Insincere	.541	.659	-.134	.189	.218	.074
Red - Green	.353	-.036	-.392	-.202	.289	-.270
Unmelodic - Melodic	.559	-.583	-.113	.218	-.260	.301
Intimate - Remote	.487	.454	.260	-.096	.423	-.160
Bad - Good	.726	-.827	.052	.132	-.134	-.063
Strong - Weak	.669	.462	-.628	.111	.188	.117
Soft - Loud	.638	.131	.782	.039	.088	.013
Dark - Bright	.632	-.352	-.238	.644	-.018	.190
Panoramic - Non-panoramic	.537	.314	-.160	-.062	.627	.124
Mild - Intense	.666	-.098	.754	-.228	-.163	-.097
Unimaginative - Imaginative	.569	-.563	.205	.056	-.434	-.139
	18.629	5.346	4.208	3.908	3.102	2.065

coincident. Group C's Evaluation factor matched most closely with Group A's. (See Tables IX and X.) Moreover, its weight in both these groups was exactly equal. This close approximation between the two groups most dissimilar with regard to musical training had not been anticipated. A totally satisfactory explanation of this phenomenon eludes this researcher. It may be that Group B's listeners had, from their experiences with music, developed the belief that musicians are very critical when they listen. Desiring to be like them, they have adopted a very critical attitude. While it suggests a reason for Group B's highly critical attitude, this explanation unfortunately fails to account for Group A's striking similarity to Group C.

In both Groups A and B, the second factor was Potency. The music's loudness was of some consequence to the members of both groups. Factor II of Group C was also a Potency one exhibiting this same characteristic. In addition, there was present in Group C's Potency factor dimensions centering upon the amount of activity in the music. The scales indicating this were active - passive and vibrant - still. Thus not only dynamic level but also activity appeared to influence these listeners decisions about the strength present in a selection. Group A's listeners had displayed a tendency to associate complexity with music which, in their opinion, was loud, intense, and strong. For Group C this tendency was altered slightly. The music had to possess not only these

TABLE IX
FACTOR MATCH FOR GROUP A WITH GROUP C

Factors	Group C				
	I	II	III	IV	V
I	.9643	.1577	-.0009	.1407	-.1594
II	-.1740	.8776	-.0903	-.1082	-.4239
III	.3559	-.3077	-.0151	.8644	.1767
IV	-.0124	-.0195	.9969	.0127	.0739
V	.0030	.5097	.7777	.1507	.3356
VI	-.0900	-.2331	-.0584	.1940	-.9468

TABLE X
FACTOR MATCH FOR GROUP B WITH GROUP C

Factors	Group C				
	I	II	III	IV	V
I	.8781	.0623	-.0481	.4148	-.2251
II	.1159	-.9531	.1913	.1881	.0789
Group B III	.0571	.0613	.9948	.0513	.0280
IV	.1145	-.0707	.0011	.5284	.8382
V	.1384	-.0335	-.9658	.2026	-.0772

characteristics, but in addition to be active and vibrant before they would be likely to describe it as complex. This added requirement implies a more intricate view of complexity in music.

Factor III of Group C resembled both Group A's fourth factor, Mood - Color, and Group B's third factor, Mood - Tempo. All three of the elements involved in these two factors combined in Group C's third factor. Hence, Factor III in Group C's factor structure illustrates the third type of factorial similarity listed earlier. From this factor, it appears that, for the members of Group C, the mood assigned to a particular excerpt was determined to some extent by the tempo of the selection. Moreover, the element of mood was capable of bringing to mind certain colors. This factor accounted for twenty-one per cent of the common variance and twelve per cent of the total variance.

Factor IV of Group C had high loadings on the following scales: non-pictorial - pictorial, rational - emotional, non-panoramic - panoramic, and non-descriptive - descriptive. Its similarity to Group A's Factor III, Imagery, was disclosed by the factor match between these two groups. (See Table IX.) This similarity, however, was not as great as that between Factor I in these two groups. Imagery for the two groups of listeners was differentiated by what it apparently signified to the listeners. For Group C this was emotion. Music, for them, would be described as rational if they were able to find imagery

in it. For Group A, Imagery, as already noted, seemed to function as a source of meaning.

As can be seen from Table X, Group C's fifth factor displayed a fairly high degree of correspondence with Factor IV in Group B. It was suggested that the latter, while somewhat ambiguous, represented a Simple Versus Complex dimension. Group C's Factor V also seemed to warrant this conclusion. By relaxing the loading requirement from 0.5 to 0.4, four scales can be said to define the factor. They were repetitive - varied, simple - complex, unique - commonplace, and chaotic - ordered. Due to their training, most of the listeners in this category were undoubtedly familiar with the general principles of three-part or ternary design, rondo, theme and variations, sonata form, and the like. The appearance of the scales listed above may therefore indicate that these listeners attempted to discern the formal devices used by the composers to make clear the relationship between one section of their music and another. If so, the music's simplicity and commonplaceness was a function of the degree to which they were able to grasp the inner logic of an excerpt's organization and coherence. Factor V accounted for six per cent of the total variance and eleven per cent of the common variance. These figures are very close to those for Factor IV in Group B.

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Conclusions

The factor analysis of the responses of the three groups of listeners to the fourteen musical excerpts revealed both similarities and differences in their factor structures. Listed below in point form are the major similarities:

1. Not only was an Evaluative factor found in the factor structure of each group, but, it was also the first factor to emerge in all three analyses. Evaluation therefore accounted for the largest proportion of the variance in Group A, Group B, and Group C. Hence, despite differences in musical background, all the subjects utilized an evaluative approach when listening to the music presented to them.

2. In all three groups, music's beauty, value and goodness were related to the degree to which melody and sincerity could be discerned by the listeners.

3. A Potency factor in which the dynamic level of the music was of some consequence to the listeners was isolated as Factor II in all three groups. The subjects who participated in this study seemed to regard the music's loudness as an indication of the strength present in it.

4. Mood emerged as a factor in all three groups. Moreover, it was invariably linked with some other element. This other element which combined with Mood varied from group to group.

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5. Isolated in Groups B and C was what appeared to be a Simple Versus Complex factor. For the listeners in both these groups, repetition was seen as contributing to simplicity, and variation as contributing to complexity.

6. Almost exactly the same amount of the total variance was accounted for in each group. This involved, for Groups A and C fifty-six per cent, and for Group B, fifty-four per cent. Hence, unaccounted for in each group was slightly less than fifty per cent of the variance.

The major differences in the factor structures of these three groups of listeners were as follows:

1. Only in Group B did Color emerge as a separate factor. In both Groups A and C, it was found in conjunction with the Mood factor.

2. The factor, Imagery, was isolated in Groups A and C. This factor presumably possessed a different significance for these two groups of listeners. Those in Group C saw it as a sign of emotion, whereas those in Group A saw it as a source of concrete meaning. For Group B, this factor was non-existent. Instead, music seemed to be evaluated to some extent on its imagery. In addition, Group B listeners related imagery in music to its degree of complexity.

3. The factor Simplicity Versus Complexity was part of the factor structure of both Groups B and C. These listeners disagreed

somewhat over the characteristics they would attribute to complex music. Group B listeners considered variation and description as serving to make music more complex. Group C listeners considered variation and disorder as functioning in this capacity.

4. While Mood was isolated as a factor in all three groups, the three instances in which it occurred could be differentiated by the element appearing in conjunction with mood. For Group A, this was color; for Group B, tempo; and for Group C, tempo and color. The last group's factor perhaps signifies a more complex view of mood in music.

5. As already noted, the factor, Potency, was isolated in all three groups. In addition to being influenced by the dynamic level, Group C's decisions about the strength present in the music were also affected by the music's activity. The latter can probably be deemed a rhythmic consideration. This, too, may signify a more complex view, on the part of the Group C listeners, of strength in music.

6. Group A was the only category of listeners for which two factors too ambiguous to label emerged.

7. Comparison of the percentage of the common variance accounted for by various factors in each group leads one to conclude that Evaluation was in all three factor structures most important in that it accounted for the largest portion of the variance. (See Table XI.) In Group B this amount was considerably

TABLE XI
COMPARISON OF THE WEIGHT OF EACH FACTOR
IN THE THREE GROUPS*

Group A		Group B		Group C	
I	29%	I	39%	I	29%
II	20%	II	21%	II	23%
III	19%	III	17%	III	21%
IV	17%	IV	13%	IV	17%
V	8%	V	10%	V	10%
VI	7%				

* These weights are for the common variance.

more than in either Groups A or C. Hence, Evaluation seemed to play a dominant role in the responses of these listeners to the music. Closer scrutiny of this Table reveals that, of the three groups, Group C's five factors tended most towards being of approximately equivalent importance. This same trend was exhibited to a much greater extent by Group A than Group B.

In view of the above discussion, the conclusion that there were differences in the responses made by the three groups of listeners to the music seems justified. However, these differences in factor structure were not as great as had been expected. Moreover, due to the rather striking similarity on certain aspects between Groups A and C, the listeners most dissimilar with regard to musical background, it is questionable if the null hypothesis should be rejected. In this writer's opinion, its outright rejection would imply more than would be desirable from the results obtained in this phase of the study. At best, all that can be said is that there appeared to be some relationship between the responses made to the musical excerpts and the extent of the listeners' musical backgrounds.

HYPOTHESIS II

There is no relationship between the musical background of an individual and his semantic factor responses to selected excerpts of classical and popular music.

Method

To test this hypothesis, the subjects' responses to the fourteen musical excerpts were grouped into the three categories of musical background described in Chapter III. Each group's responses were then sub-divided into two categories: responses to the classical excerpts and responses to the popular excerpts. This second classification produced six categories of responses, each of which were separately factor analyzed. The results of these analyses are presented in Tables XII, XIII, XV, XVII, XXI, and XXIV. The factors which emerged in these six analyses were then labelled. Unless otherwise indicated, each factor's name reflects the unifying theme of the scales for which loadings of 0.5 or greater were found.

Once the factor analyses were completed, comparisons were then made between a given group's responses to the classical excerpts and to the popular excerpts. In addition, each group's responses to the classical excerpts were also compared with the responses of the other two groups to the popular excerpts. This method of comparison required nine factor matches. These were schematically depicted in Chapter III. (See p. 79) The results of these factor matches are reported in Tables XIV, XVI, XVIII, XIX, XX, XXII, XXIII, XXV, and XXVI.

As a purely exploratory measure, factor matches were also done for the three listening groups' responses to the same type

of music. This involved an additional six factor matches, three for the responses to the classical excerpts and three for the responses to the popular excerpts. These comparisons were not, of course, necessary for establishing whether Hypothesis II should be accepted or rejected. They were made on the supposition that the factor structures for the three groups would perhaps be somewhat different if both the musical backgrounds of the listeners and the type of music were considered. That is, grouping together the two distinct types of music may have obscured or distorted the factor structures of the three groups of listeners. This may have been the cause of the similarity earlier found between the responses of Group A and Group C. Hence, the factor structures of the three groups of listeners for the classical excerpts were compared. These comparisons may be found in the three tables in Appendix D. Their factor structures for the popular excerpts were also compared. The results of these matches are given in the tables in Appendix E. At various point in the ensuing discussion reference is also made to these results.

Results and Discussion

Group A's Responses to the Classical Excerpts. When Group A's responses to the eight classical excerpts were factored, seven factors, which together accounted for fifty-six per cent of the variance, emerged. (See Table XII.) Of these seven

TABLE XII FACTOR LOADINGS FOR GROUP A ON THE CLASSICAL EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Pleasant - Unpleasant	.572	-.677	.115	.292	-.031	-.024	-.114	.011
Non-descriptive - Descriptive	.511	.034	-.653	.061	-.042	-.181	.169	.129
Vibrant - Still	.544	.206	.080	.302	-.170	.582	-.024	-.189
Repetitive - Varied	.704	.027	-.043	.051	.059	.035	.145	.820
Yellow - Blue	.540	-.060	.017	.701	-.084	.122	.044	.142
Happy - Sad	.678	-.234	.054	.753	-.189	-.042	-.041	.120
Chaotic - Ordered	.508	.613	-.077	-.003	-.171	.092	.034	-.297
Valuable - Worthless	.580	-.498	.507	.183	-.142	.101	.071	-.079
Passive - Active	.533	.037	-.157	-.066	.702	.021	-.075	.064
Colorful - Colorless	.533	-.150	.574	.240	-.168	-.100	.288	-.045
Meaningless - Meaningful	.505	.217	-.636	-.031	.075	-.087	-.199	.008
Simple - Complex	.560	-.074	-.153	.068	.542	-.153	-.019	.457
Relaxed - Tense	.611	-.436	.008	.208	.258	-.297	-.333	.334
Unrhythmic - Rhythmic	.444	.607	-.247	.088	-.034	.031	.023	-.072
Serious - Humorous	.593	.107	.178	-.408	.054	.401	.357	-.305
Slow - Fast	.569	.039	.007	-.190	.727	.031	.004	.039
Large - Small	.531	-.034	.321	-.108	.100	.629	.087	-.030
White - Black	.579	-.282	.026	.602	.278	-.183	-.036	-.157
Pictorial - Non-pictorial	.642	-.266	.751	.027	-.013	.026	.069	.042
Unique - Commonplace	.372	-.132	.172	-.127	-.091	.220	.359	-.352
Emotional - Rational	.473	-.195	.193	-.058	.081	.001	.622	.036
Ugly - Beautiful	.745	.759	-.189	-.290	.167	-.049	-.038	.134
Sincere - Insincere	.619	-.545	.213	.231	.124	.417	.185	-.019
Red - Green	.564	.085	.069	-.011	-.199	.129	.695	.111
Unmelodic - Melodic	.536	.629	-.221	-.037	.053	.144	-.176	.190
Intimate - Remote	.436	-.481	.217	.282	.139	-.098	.215	.058
Bad - Good	.669	.709	-.253	-.192	.133	-.184	-.091	.077
Strong - Weak	.527	-.174	.448	-.142	-.092	.479	.166	.104
Soft - Loud	.696	-.074	.072	.304	.515	-.565	-.005	-.095
Dark - Bright	.519	.401	-.092	-.550	-.040	.207	.013	.056
Panoramic - Non-panoramic	.516	-.159	.679	.046	.012	.095	.131	-.044
Mild - Intense	.641	-.014	-.111	.250	.552	-.476	-.184	-.019
Unimaginative - Imaginative	.620	.257	-.698	-.010	.180	-.161	-.063	.063
	18.670	4.334	3.743	2.724	2.384	2.290	1.656	1.539

factors, only the first five were labelled, since, for both factors VI and VII the number of scales having at least 0.5 loadings was too limited. Even when scales loading in the 0.4 range were considered, the nature of these factors still remained too ambiguous to warrant defining them.

Factor I accounted for twenty-three per cent of the common variance and thirteen per cent of the total variance. As was the case when Group A's responses to all fourteen musical excerpts were analyzed, this factor was Evaluation. Scales loading high on this factor were beautiful - ugly, good - bad, pleasant - unpleasant, melodic - unmelodic, ordered - chaotic, rhythmic - unrhythmic, and valuable - worthless. Stated positively, the linkage pattern among these scales was beautiful, good, pleasant, melodic, ordered, rhythmic, and valuable. From this list, it appears that, for the Group A listeners to describe classical music as beautiful or good or valuable and their experience of listening to such music as pleasant, the music in their opinion had to be melodic, ordered, and rhythmic. Of these three requisites, two, melodic and rhythmic, refer to raw materials of music. To what the third requisite, ordered, refers is not so clear. From a musician's viewpoint, the idea of order in music suggests the organization of sound in time. Thus, for a musician to find order in a selection implies a conscious listening for the planned design which binds the composition together. One wonders if order in music had the same

implications for these non-musicians.

Factor II accounted for twenty per cent of the common variance. Its weight was therefore very close to that of the first factor. The following scales loaded high on this factor: pictorial - non-pictorial, imaginative - unimaginative, panoramic - non-panoramic, descriptive - non-descriptive, colorful - colorless, meaningful - meaningless, and valuable - worthless. Since these scales tend to center upon the music's connotative power, Factor II was labelled Imagery. Its appearance indicates that an attempt to find some decidedly concrete characteristics formed a part of Group A's responses to the classical excerpts. Apparently these listeners see these associations as contributing to both the meaning and the value of this classical music. Moreover, for these listeners, classical music's meaning appeared to reside in its imagery. This conjecture, if valid, is of some significance to the music appreciation teacher. If non-musicians do in fact limit meaning in music to imagery, this predisposition is something to be considered when presenting classical music to these listeners.

Examination of the scales loading high on Factor III revealed it combined two elements, Mood and Color. For purposes of reference, this factor was therefore labelled Mood-Color. As noted in one of the discussions of Hypothesis I, the appearance of mood and color in conjunction with each other, seems to indicate

that the mood which these listeners assigned to an excerpt called to mind certain colors. This Mood-Color factor accounted for fifteen per cent of the common variance.

The fourth factor to be isolated in this factor analysis was defined by the scales fast - slow, active - passive, intense - mild, complex - simple, and loud - soft. This cluster of scales is of a very diverse nature: the first two appear to refer to the activity in the music, the third to the strength in the music, the fourth to the degree of complexity, and the fifth to the dynamic level of the music. Providing them with a concise label was therefore rather difficult. It seemed to be a factor which not only combined Activity and Potency, but in which these were also interrelated with the concept of complexity and with dynamic level. From this factor, a number of interpretations can be made. One is that the music's dynamic level served as an indication of its strength or potency. The louder the music, the greater the strength attributed to it by these subjects. A second interpretation is that the dynamic level was also associated with the amount of activity in the music. The louder the music, the more active it was considered to be by these listeners. Another interpretation which follows is that the degree of complexity which these listeners would assign to an excerpt was a function of how active and how strong these listeners felt the music was. Since for them, active music was related to a fast tempo and strong music

to a loud volume, these two characteristics were, in a sense, attributes of complex classical music.

Factor V was also a rather confusing one. Three scales, large - small, vibrant - still, and loud - soft, loaded at 0.5 or greater. By lowering this loading level to 0.47, two additional scales, strong - weak and mild - intense, emerged. These scales seem to define a Potency factor. Hence, it would seem that these listeners considered the music's strength as related to activity and complexity and as a separate entity. Again, the music's dynamic level seemed rather important in deciding the degree of strength present in the music.

Group A's Responses to the Popular Excerpts. The factor analysis of Group A's responses to the six popular excerpts produced an eight factor solution. (See Table XIII.) Together, these eight factors accounted for sixty-two per cent of the total variance. It will be recalled that the seven factor solution for Group A's responses to the classical excerpts accounted for fifty-seven per cent of the total variance. In view of these figures, the semantic differential test would seem to be slightly better for the popular excerpts than for the classical ones in the case of the Group A listeners. Further examination of the solution for the popular excerpts revealed this was not necessarily true. Of the eight factors isolated, four could not be defined. For

TABLE XIII FACTOR LOADINGS FOR GROUP A ON THE POPULAR EXCERPTS

Scales	Communalities	Factors							
		I	II	III	IV	V	VI	VII	VIII
Pleasant - Unpleasant	.524	-.102	.368	.146	.270	.270	-.120	-.128	.425
Non-descriptive - Descriptive	.659	-.042	-.098	.026	-.441	-.151	.109	.644	-.046
Vibrant - Still	.568	-.529	.002	-.483	.091	.074	.010	-.200	.025
Repetitive - Varied	.653	-.113	-.056	-.009	-.043	-.076	.790	.053	.049
Yellow - Blue	.584	-.705	.170	.002	-.035	-.046	.162	.167	-.018
Happy - Sad	.650	-.751	.006	-.017	.089	.069	.019	.212	.169
Chaotic - Ordered	.563	-.023	-.346	-.370	.179	-.345	-.117	-.039	-.373
Valuable - Worthless	.565	-.068	.392	.094	.388	.271	-.363	-.182	-.092
Passive - Active	.665	.434	.149	.173	-.170	.091	.095	.575	-.217
Colorful - Colorless	.615	-.438	.149	-.128	.404	.291	-.023	-.271	.251
Meaningless - Meaningful	.703	.050	-.201	.029	-.202	-.780	.014	.100	.010
Simple - Complex	.582	.035	-.007	.552	.050	-.497	.162	.015	.006
Relaxed - Tense	.523	.010	.346	.538	-.022	.140	-.211	-.216	.042
Unrhythmic - Rhythmic	.764	.126	-.221	-.083	.101	-.116	.003	.817	.040
Serious - Humorous	.727	.719	.239	-.051	.163	.296	.150	.107	.047
Slow - Fast	.545	.632	.143	.290	-.026	.070	-.134	.089	-.095
Large - Small	.621	.071	.197	-.282	.684	-.031	.170	.003	-.006
White - Black	.592	-.609	.207	.217	.239	.134	-.083	-.075	-.210
Pictorial - Non-pictorial	.651	-.276	.030	.041	.676	.281	-.183	-.046	.032
Unique - Commonplace	.556	-.001	.413	-.354	.166	.007	-.477	-.024	.071
Emotional - Rational	.619	.131	.693	-.126	.178	-.098	.204	-.001	-.154
Ugly - Beautiful	.671	.117	-.688	-.057	-.213	-.222	.292	.036	.008
Sincere - Insincere	.569	.143	.230	.058	.177	.631	-.188	-.090	-.142
Red - Green	.645	-.067	-.107	-.156	.020	-.172	.035	-.037	.756
Unmelodic - Melodic	.652	.287	-.706	-.072	.010	-.144	.102	.148	-.109
Intimate - Remote	.624	.095	.689	.259	.054	.233	-.076	-.054	-.090
Bad - Good	.717	.201	-.548	.044	-.213	-.310	.450	.030	-.172
Strong - Weak	.649	-.008	.323	-.506	.335	.279	-.140	-.110	.259
Soft - Loud	.577	.289	.060	.608	-.014	.334	.039	-.025	.079
Dark - Bright	.619	.706	-.290	.005	-.150	-.046	.097	.034	-.040
Panoramic - Non-panoramic	.478	-.102	.220	-.040	.518	.079	-.372	-.075	.011
Mild - Intense	.681	-.080	.026	.799	-.087	-.083	.019	.028	-.139
Unimaginative - Imaginative	.580	.266	-.476	.083	-.398	-.156	.226	.122	-.165
	20.390	3.995	3.793	2.783	2.479	2.365	1.842	1.810	1.324

Factors V, VI, and VIII this inability to assign a name was caused by an insufficient number of scales loadings at 0.5 or greater. Lowering the acceptance level to loadings in the 0.4 to 0.5 bracket did not provide a remedy for this problem. For Factor VII, this inability to label the factor was caused by failure on the part of this researcher to discern a common theme for the three scales which loaded above 0.5. Since there were no scales loading between 0.4 and 0.5, further clarification of the nature of Factor VII was not available. These four unidentifiable factors encompassed over one-third of the total variance presumably accounted for by the solution. Hence, while the solution for the popular excerpts accounted for more of the total variance than the solution for the classical excerpts, it did not provide a fuller explanation of the listeners' responses to this type of music.

As can be seen from Table XIII, the first factor isolated for Group A's responses to the popular excerpts combined three elements -- mood, color, and tempo. Thus, it would seem that the mood of a selection brought to mind certain colors. It will be recalled that these listeners displayed the same tendency when listening to the classical excerpts. (See Factor III, Table XII.) Tempo seemed to function as a sign of activity. Its occurrence in conjunction with Mood seems to indicate that the speed of the selection exerted some influence upon the mood these listeners assigned to the excerpts. Those excerpts which were judged fast

and vibrant also tended to be viewed by these listeners as happy and humorous. This second trend was not manifest in this listening group's responses to the classical excerpts. For purposes of reference, Factor I was labelled Mood - Color - Activity. It showed a fairly high degree of correspondence with the third factor isolated in these listeners' responses to the classical excerpts. (See Table XIV).

Evaluation was the second factor isolated for Group A's responses to the popular excerpts. Of the six factor analyses required for Hypothesis II, this was the only instance in which Evaluation's position was shifted from that of the first factor. However, since Evaluation accounted for nineteen per cent of the common variance and twelve per cent of the total variance, its weight in the group's factor structure was exactly the same as that of Factor I, the Mood - Color - Activity dimension. As will be seen later, only in one other analysis, it being Group B's responses to the popular excerpts, did the weights of the first two factors to be isolated approach a comparable state of equality. (See Table XVII.)

The linkage pattern for the scales loading high on Evaluation was unmelodic, rational, remote, ugly, and bad. From this list, it seems fair to conjecture that Group A's listeners tended to associate ugliness and badness in popular music with a lack of three qualities -- melody, emotion, and intimacy.

TABLE XIV
FACTOR MATCH FOR GROUP A'S POPULAR WITH GROUP A'S CLASSICAL

Factors	Group A - Classical						
	I	II	III	IV	V	VI	VII
I	.2565	.0354	-.8771	.2634	.2294	.1872	-.0816
II	-.8656	.0841	.1160	.1203	.0091	.4496	.0620
III	-.2691	-.0344	.3334	.5672	-.6073	-.2685	.2296
IV	.1119	.8967	-.0170	.2204	.3242	.1578	.0674
V	-.5716	.6562	.4014	-.1373	.1884	-.0875	-.1399
VI	.2291	-.0114	.0364	.2450	.1811	.3472	.8560
VII	.3411	-.6683	.5030	.3550	-.0335	.2385	.0016
VIII	-.3885	.1646	-.1329	-.4491	-.0459	.6452	.4291

Apparently, the presence of these three characteristics would lead them to designate popular music as both beautiful and good. As can be seen from Table XIV, this second factor was fairly similar to the Evaluation factor in the solution for Group A's responses to the classical excerpts.

The third factor to be generated in this factor analysis was Potency. It accounted for fourteen per cent of the common variance. Examination of the scales having high loadings on this factor revealed that the music's dynamic level appeared to be an important determinant of the amount of strength which these listeners found in the popular excerpts. When the volume was loud, they considered the music to be strong rather than weak, intense rather than mild, and tense rather than relaxed. Not only dynamic level but also complexity came out on Group A's Potency factor for the popular excerpts. If this type of music could be described by these listeners as intense, tense, and strong, they tended to term it complex rather than simple. Thus, these listeners appeared to relate the music's strength with its degree of complexity. In addition, since the loud - soft scale also came out strongly in this cluster, they also tended to relate the degree of complexity with the dynamic level. For them, loudness perhaps signified complexity, and softness simplicity. This Potency factor failed to show a strong relationship with any of the factors isolated in Group A's responses to the

classical excerpts. (See Table XIV.) It did demonstrate some affinity with both the fourth and fifth factors in that analysis. Both of these, it will be recalled, did involve Potency.

Imagery emerged as a factor for Group A's listeners in both their responses to the classical and the popular excerpts. In the former, it was Factor II; in the latter, Factor IV. Examination of Table XIV revealed that the highest entry on this factor match occurred between these two factors. Group A's responses to the two types of music were therefore most similar with respect to imagery considerations. Although imagery was apparently sought for both types of music, it should be noted, that this approach was perhaps of more importance to these untrained listeners when listening to the classical excerpts. This statement is made on the basis of the weight of the factor in each analysis. For the classical excerpts, it accounted for twenty per cent of the common variance; for the popular excerpts it accounted for twelve per cent of the common variance.

Group B's Responses to the Classical Excerpts. Factor analyzing Group B's responses to the eight classical excerpts produced a seven factor solution. (See Table XV.) These seven factors accounted for fifty-six per cent of the total variance. Of them, only the first four could be defined. Due to the paucity of scales loading at 0.4 or greater, the fifth, sixth, and seventh were unidentifiable.

TABLE XV FACTOR LOADINGS FOR GROUP B ON THE CLASSICAL EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Pleasant - Unpleasant	.532	.580	.040	.382	-.022	-.020	-.087	.198
Non-descriptive - Descriptive	.595	-.127	.095	.029	.182	.039	.725	-.091
Vibrant - Still	.564	.012	-.704	.134	.075	.032	-.206	.039
Repetitive - Varied	.560	.193	.085	.055	.014	-.183	.648	.242
Yellow - Blue	.512	-.030	-.006	.651	.076	.058	.028	.279
Happy - Sad	.657	.322	-.145	.721	-.032	.027	.077	.070
Chaotic - Ordered	.536	-.634	-.274	.121	.075	.190	-.021	-.038
Valuable - Worthless	.518	.559	-.124	.181	.313	.066	-.196	.129
Passive - Active	.502	-.117	.568	-.307	-.160	.043	.207	-.016
Colorful - Colorless	.573	.423	-.292	.191	.398	-.101	-.321	.039
Meaningless - Meaningful	.565	-.508	.148	-.094	-.473	.108	.183	-.087
Simple - Complex	.570	.200	.490	-.070	-.257	-.429	.080	.168
Relaxed - Tense	.593	.464	.461	.234	-.169	-.267	-.038	.092
Unrhythmic - Rhythmic	.612	-.682	.131	.031	-.036	.297	-.119	.160
Serious - Humorous	.699	.014	-.058	-.490	-.010	.660	-.063	.125
Slow - Fast	.592	.099	.543	-.383	.045	.086	-.147	.329
Large - Small	.517	.044	-.595	-.332	-.007	.052	-.159	.151
White - Black	.511	.205	.085	.649	-.014	-.155	-.081	-.097
Pictorial - Non-pictorial	.488	.400	-.196	.026	.423	.148	.037	-.295
Unique - Commonplace	.542	-.072	-.134	-.025	.719	.011	.030	.007
Emotional - Rational	.449	.184	-.075	-.064	.613	.071	-.153	.033
Ugly - Beautiful	.723	-.747	-.047	-.362	-.109	-.101	-.025	-.092
Sincere - Insincere	.483	.410	.027	.043	.279	.459	-.061	.141
Red - Green	.498	.083	-.204	.161	.017	.062	.072	.644
Unmelodic - Melodic	.601	-.747	-.025	-.130	-.078	-.093	-.054	.088
Intimate - Remote	.516	.560	.258	.209	.246	.122	-.089	.095
Bad - Good	.630	-.705	-.034	-.265	-.105	-.152	-.081	-.144
Strong - Weak	.582	.244	-.429	-.137	.429	.228	.128	.257
Soft - Loud	.616	.133	.633	.300	-.278	.059	-.109	-.120
Dark - Bright	.592	-.324	-.089	-.685	-.011	.095	-.022	.002
Panoramic - Non-panoramic	.534	.530	-.168	-.029	.192	.350	-.117	-.225
Mild - Intense	.614	.057	.577	.167	-.388	-.106	-.098	-.282
Unimaginative - Imaginative	.597	-.307	.160	-.266	-.581	-.168	.158	.125
	18.672	5.296	3.340	3.250	2.682	1.443	1.430	1.231

Evaluation, the first factor to emerge in this particular analysis, accounted for twenty-eight per cent, that is, practically one-third, of the common variance. The eight scales which loaded high on this factor were linked together in the following manner: beautiful, melodic, good, rhythmic, ordered, pleasant, intimate, valuable, and meaningful. (See Table XV.) In view of this linkage pattern, the conjecture that Group B's ability to discern melodiousness, rhythm, order, and intimacy in the classical excerpts of music strongly influenced their decisions about the music's beauty, goodness, pleasantness, value, and meaning seems plausible. Two of these characteristics, melodiousness and intimacy, also influenced Group A's judgments about the beauty and goodness of the popular excerpts. (See Factor II, Table XIII.) Since Group B's listeners apparently sought two more qualities, rhythm and order, they may be regarded as more demanding in this respect. The appearance of the meaningful - meaningless dimension on this factor leads to some rather interesting speculation. It may, for example, indicate that the qualities noted above functioned as a source of meaning for these listeners when they were presented with classical music. If so, this is quite a contrast to Group A's dependence upon imagery to provide meaning.

The likeness of Group B's Evaluation factor with Group A's second factor on the popular excerpts can be seen from

Table XVI. From this same table it also can be seen that Group A's fifth factor, an unidentified one, resembled Group B's Evaluation factor to some extent. However, the similarity between Group B's Evaluation factor and the Evaluation factor located in Group A's responses to the classical excerpts was greater than the factorial similarity in either of the previous two examples. (See Table XLIX, Appendix D.)

Factor II was defined by the scales vibrant - still, loud - soft, large - small, intense - mild, active - passive, and fast - slow. In addition, the scale simple - complex loaded slightly below 0.5. This factor resembled Factor IV in Group A's responses to the classical excerpts. (See Table XII.) Both involved scales centering on four elements: the music's activity, the music's potency, the music's volume, and the music's complexity. Group B's listeners, as did those in Group A, seemed to interrelate all four of these aspects. Hence, once again, activity, particularly as indicated by the music's tempo, seemed to be a sign of intensity or potency; loudness a sign of potency; and activity and potency a sign of complexity. The factor match between these two groups provided further evidence of the similarity between these two factors. (See Table XLIX, Appendix D.) In addition, it also indicated that Group A's fifth factor tended to fit with Group B's second. This second factor, Activity - Potency - Complexity, accounted for eighteen per cent of the common variance. Its weight

TABLE XVI

FACTOR MATCH FOR GROUP A'S POPULAR WITH GROUP B'S CLASSICAL

Factors	Group B - Classical						
	I	II	III	IV	V	VI	VII
I	-.2257	.1453	-.9179	.0321	.2288	-.1260	.1269
II	.8121	.1939	.1461	.4413	.0757	.1763	.2236
III	.3282	.7498	.2761	-.4301	-.2327	-.0703	-.0992
IV	.2534	-.5534	-.2425	.4321	.3197	-.5304	-.0242
V	.7681	-.0880	.2914	.3026	.4653	-.0805	-.0538
VI	.1083	-.2505	-.3038	-.1660	-.3258	.6421	.5360
VII	-.4306	.4291	.2016	-.1418	.4833	.5785	.0391
VIII	.5364	-.0545	.1666	-.1798	-.0374	.1367	.7932

was therefore somewhat less than that of the first factor, Evaluation.

Compared with Factor II, the third factor to be isolated in the factor analysis of Group B's responses to the classical excerpts accounted for just slightly less, seventeen per cent, of the common variance. This was a Mood - Color factor. Its similarity to Group A's third factor for the same type of music is obvious. (See Factor III, Table XII.) Hence the high degree of correspondence indicated in the factor match between these two groups was not surprising. (See Table XLIX, Appendix D.) That this third factor was also highly similar to the first factor which emerged for Group A's responses to the popular excerpts can be seen from Table XVI. The difference between the two seemed to be that in Group A tempo was a part of this factor, whereas in Group B it was not.

Of the four factors for which identification was attempted, the most ambiguous was Factor IV. Three scales had high loadings on this factor. They were unique - commonplace, emotional - rational, and imaginative - unimaginative. All three may perhaps be construed as providing a comment on the calibre of the writing in the classical musical selections presented to these listeners. If so, the factor might be designated as a judgment on the composer's skill or craftsmanship. The linkage pattern among the terms involved was commonplace, rational, and unimaginative.

Perhaps this indicates a tendency to view writing considered to be commonplace as also being rational and unimaginative. Rotation of Group A's responses to the popular excerpts to obtain the closest possible fit with Group B's responses to the classical excerpts did not disclose a similar factor in Group A's responses. (See Table XVI.) Nor did the comparison of Group B's responses to the classical excerpts with Group A's responses to the same type of music illuminate a close fit for this fourth factor. (See Table XLIX, Appendix D.) This listening approach, then, was, at this point in the analyses, one utilized by only the Group B listeners.

Group B's Responses to the Popular Excerpts. Factoring Group B's responses to the six popular excerpts resulted in the isolation of six factors. (See Table XVII.) They accounted for fifty-nine per cent of the total variance. Of these six factors, only four could be labelled. Ambiguity created by a limited number of scales loading at or above 0.4 was the reason for the hesitancy to label Factors V and VI. Together, these two unnamed factors involved eleven per cent of the total variance. Hence, in actual fact, slightly less than one-half of the total variance was explained in this analysis.

As in the factor analyses for both Group A and Group B's responses to the classical excerpts, the first factor to be isolated in this analysis was Evaluation. High correspondence

TABLE XVII FACTOR LOADINGS FOR GROUP B ON THE POPULAR EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
Pleasant - Unpleasant	.559	.641	-.044	.294	.105	-.135	.177
Non-descriptive - Descriptive	.555	-.204	.052	-.709	.052	-.068	.012
Vibrant - Still	.630	.091	-.683	.313	.166	.108	.134
Repetitive - Varied	.665	-.075	-.119	-.160	-.012	.041	.786
Yellow - Blue	.487	.093	-.270	-.065	.579	-.226	.125
Happy - Sad	.623	.059	-.564	.177	.498	-.050	.142
Chaotic - Ordered	.421	-.244	-.475	-.303	-.132	.146	-.074
Valuable - Worthless	.617	.555	-.030	.478	.058	-.252	-.112
Passive - Active	.633	-.013	.688	-.226	-.243	-.199	.094
Colorful - Colorless	.610	.324	-.407	.557	.128	.088	.072
Meaningless - Meaningful	.637	-.667	.082	-.423	.066	-.021	.027
Simple - Complex	.498	-.063	.098	-.350	.050	-.187	.569
Relaxed - Tense	.634	.243	.638	.161	.223	-.028	.303
Unrhythmic - Rhythmic	.374	-.406	.380	-.126	-.163	.042	-.144
Serious - Humorous	.558	.168	.617	-.008	-.335	.190	-.038
Slow - Fast	.733	.153	.822	.017	-.178	.049	-.022
Large - Small	.651	.029	-.120	.104	.134	.778	-.030
White - Black	.616	.126	.138	.085	.752	.096	.001
Pictorial - Non-pictorial	.536	.322	-.143	.510	.090	.223	-.306
Unique - Commonplace	.454	.012	.024	.631	.068	.028	-.223
Emotional - Rational	.530	.379	.317	.445	-.090	.262	.103
Ugly - Beautiful	.650	-.731	-.236	-.213	-.088	-.058	.055
Sincere - Insincere	.595	.610	.342	.153	.058	.281	-.034
Red - Green	.438	-.022	-.170	.008	.596	.143	-.181
Unmelodic - Melodic	.560	-.696	-.013	.134	.126	-.186	.148
Intimate - Remote	.641	.711	.302	.145	-.045	.145	.001
Bad - Good	.689	-.727	-.016	-.268	-.248	.125	.108
Strong - Weak	.619	.418	-.262	.318	.035	.479	-.209
Soft - Loud	.648	.226	.664	-.033	.030	-.387	-.063
Dark - Bright	.509	-.113	.414	-.165	-.512	-.123	-.143
Panoramic - Non-panoramic	.529	.360	.007	.478	.229	.252	-.235
Mild - Intense	.562	-.196	.522	-.132	.104	-.458	.112
Unimaginative - Imaginative	.616	-.356	.190	-.639	-.121	-.062	.161
	19.078	4.898	4.802	3.614	2.324	1.878	1.562

was found between it and the Evaluation factors isolated in the analyses just named. (See Tables XVIII and XIX.) In all three cases, the listeners seemed to be strongly aware of the melodic element: melody constituted a prime consideration in these listeners' judgments of the music's beauty, goodness, and value. The order which was sought by both groups when listening to the classical excerpts was apparently not a paramount consideration for Group B when listening to the popular excerpts. Why is a matter for conjecture. Perhaps the order in this type of music was so obvious to them that it failed to deserve mention. Both the intimacy and sincerity dimensions came out on this factor in Group B's responses to the popular excerpts. Bad, ugly, worthless popular music was described as remote and insincere. Intimacy was also considered a desirable characteristic in classical music by these same listeners.

This Evaluation factor located in Group B's responses to the popular excerpts also demonstrated a fairly high degree of relationship with Factors II and V in Group A's responses to the popular excerpts. (See Table LII, Appendix E.) In that analysis, Factor II was Evaluation; Factor V was an unlabelled factor.

In Group B's responses to the classical excerpts, Activity and Potency were combined in Factor II. (See Table XV.) This was also true of the same group's responses to the popular excerpts. (See Factor II, Table XVII.) In addition, this second factor had

TABLE XVIII
FACTOR MATCH FOR GROUP A'S CLASSICAL WITH GROUP B'S POPULAR

Factors	Group B - Popular					
	I	II	III	IV	V	VI
I	-.8991	-.4295	-.0810	.0212	-.0051	-.0135
II	.3535	-.2450	.8703	.0339	.1409	-.1913
III	.0138	-.5227	.1001	.8206	-.0846	.1899
IV	.0987	.9817	-.0854	-.0866	.0000	.1087
V	.2298	-.3375	.0777	.1053	.8861	.1758
VI	.5089	.5190	.0288	.4616	.5012	-.0811
VII	-.1654	-.3765	-.2020	.1179	.0654	.8786

TABLE XIX

FACTOR MATCH FOR GROUP B'S CLASSICAL WITH GROUP B'S POPULAR

Factors	Group B - Popular					
	I	II	III	IV	V	VI
I	.9248	.1385	.2977	.0808	.1549	.0805
II	.0777	.9163	-.0773	-.1668	-.3422	.0583
III	.0114	-.5493	.0789	.7855	-.2736	.0097
IV	.3376	.0901	.8995	-.1696	.0995	-.1735
V	.4296	.6348	-.0841	-.1026	.2221	-.5879
VI	-.2551	-.3751	-.8147	.0267	.0674	.3539
VII	.2772	.2827	-.1996	.5407	.3205	.6390

a third component, Mood. All three components of Factor II in Group B's responses to the popular excerpts had, of course, been located in the other analyses. This was, however, the only instance in the six factor analyses for Hypothesis II in which this particular combination was found. In three of the other five analyses, Mood was found in conjunction with Color. In the remaining two analyses, it combined with Activity and Color. Group B's relating of Mood to both Activity and Potency perhaps indicates that as these subjects listened to the popular excerpts they associated active, potent music with specific moods. The greater the degree of activity and potency they believe the music possessed, the lighter and happier the mood they attributed to it. As in all six of the analyses for Hypothesis II, tempo seemed to be an important indicator of activity, and loudness of potency.

Despite the presence of the Mood dimension, Group B's second factor showed very high correspondence with factors located in two analyses discussed earlier in connection with Hypothesis II. They were Factor IV in Group A's responses to the classical excerpts, and Factor II in Group B's responses to the classical excerpts. (See Tables XVIII and XIX.) The similarity displayed in the first instance named was the second highest found in any of the factor matches for Hypothesis II. Group B's Activity - Potency - Mood factor also demonstrated some relationship with three factors,

I, III, and VII, in Group A's responses to the popular excerpts. (See Table LII, Appendix E.) These relationships were not as strong as when responses to different types of music were compared.

Factor II accounted for one-quarter of the common variance. Since Factor I accounted for twenty-six per cent of the common variance, the weights of these two factors were nearly equal. With them approximately one-half of the common variance could be explained.

Nineteen per cent of the common variance was accounted for by the third factor to be isolated when Group B's responses to the popular excerpts were factored. This factor was Imagery. An interesting feature of this factor was that non-descriptive, un-imaginative, colorless, and non-pictorial writing was associated with the state of being commonplace. Uniqueness in these popular excerpts was therefore to some extent a function of the imagery discernable in this music by these listeners.

Imagery was not isolated as a factor in Group B's responses to the classical excerpts. Rotation of this latter factor solution to the point providing the closest possible fit with this group's responses to the popular excerpts, indicated there was a fairly high degree of similarity between the fourth and sixth factors in the classical excerpts' solution and the third factor in the popular excerpts' solution. (See Table XIX.) The correspondence between this Imagery factor and the second factor isolated

for Group A's responses to the classical excerpts was also quite strong. (See Table XVIII.)

These three factors, Evaluation, Activity - Potency - Mood, and Imagery, were the major ones in Group B's responses to the popular excerpts. They left unexplained only thirty per cent of the common variance. This thirty per cent was shared by Factors IV, V, and VI, the figures being twelve, ten, and eight per cent respectively. As mentioned earlier, of these three remaining factors, only one, Factor IV, could be identified. It was Color. This element was located in the responses of all three groups of listeners to both types of music. However, only in this analysis did it emerge as a separate factor. In the other five, it was invariably linked to some other concept, the most common one being Mood. As can be seen from the three factor matches comparing the various group's responses to the classical excerpts with Group B's responses to the popular excerpts, this Color factor demonstrated in each case some affinity with the Mood - Color factor located in these other three analyses. (See Tables XVIII, XIX, and XX.) Its affinity with Group C's Mood - Color factor was particularly high. (See Table XX.)

This emergence of a Color factor in the responses of Group B to the popular excerpts does not necessarily mean that these listeners engaged in "colored hearing." That is, it cannot be concluded that the primary sensation of tone directly and

TABLE XX

FACTOR MATCH FOR GROUP B'S POPULAR WITH GROUP C'S CLASSICAL

Factors	Group C - Classical				
	I	II	III	IV	V
I	.9183	.3163	.1320	-.0762	.1830
II	-.2103	-.3275	.6697	.6297	.0593
III	.3358	-.3480	-.5081	.0285	.7121
Group B - Popular - IV	.2223	.9261	.1774	.2466	-.0255
V	-.1138	-.4368	-.0827	-.8426	.2818
VI	.0147	.3828	.8818	.2721	-.0396

immediately aroused in these listeners a sensation of color,⁵ Instead, it may simply mean that as these subjects listened to the popular excerpts they made a conscious search for color. Comments made before and after the testing sessions lend plausibility to a second interpretation. Many subjects apparently found the inclusion of the specific color scales on the semantic differential startling. A number questioned how such scales could be used to describe one's response to music. Being in a testing situation and thus confused may have encouraged some of the subjects to group these scales together. Hence, this color factor's emergence could have been a matter of chance. If it was, it is interesting that such an approach was adopted by a particular group of listeners for a particular type of music.

Group C's Responses to the Classical Excerpts. The five factors generated by factoring Group C's responses to the classical excerpts accounted for fifty-three per cent of the total variance. (See Table XXI.) This figure was the lowest obtained for any of the three groups for either type of music. In view of this fact, one may be led to conclude that the semantic differential test was least effective when measuring the responses

⁵Paul R. Farnsworth, The Social Psychology of Music (New York: Dryden Press, 1958), pp. 90 - 93.

TABLE XXI FACTOR LOADINGS FOR GROUP C ON THE CLASSICAL EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V
Pleasant - Unpleasant	.520	.617	.302	-.065	.122	.170
Non-descriptive - Descriptive	.233	-.274	.076	.101	-.008	-.377
Vibrant - Still	.574	.213	.106	-.642	-.280	.164
Repetitive - Varied	.373	.014	.169	.583	-.068	-.012
Yellow - Blue	.433	.073	.646	.019	-.076	.062
Happy - Sad	.634	.186	.753	-.072	.164	.008
Chaotic - Ordered	.538	-.434	-.225	-.504	-.010	.212
Valuable - Worthless	.560	.719	-.017	-.180	-.038	.092
Passive - Active	.537	-.234	-.273	.527	.335	-.133
Colorful - Colorless	.572	.489	.128	-.438	-.118	.334
Meaningless - Meaningful	.575	-.614	-.049	.201	.096	-.381
Simple - Complex	.571	-.078	.093	.672	.318	-.060
Relaxed - Tense	.489	.124	.278	.498	.384	.038
Unrhythmic - Rhythmic	.391	-.541	-.200	-.197	.122	.063
Serious - Humorous	.482	.057	-.626	-.134	-.258	-.048
Slow - Fast	.512	.001	-.354	.534	.304	.089
Large - Small	.527	.104	-.266	-.277	-.604	.061
White - Black	.553	.297	.602	.006	.320	.011
Pictorial - Non-pictorial	.643	.160	.147	.030	-.119	.762
Unique - Commonplace	.513	.313	-.377	-.445	-.075	.262
Emotional - Rational	.565	.010	-.168	-.229	-.113	.686
Ugly - Beautiful	.634	-.752	-.174	.085	-.060	-.165
Sincere - Insincere	.542	.674	-.071	-.021	-.189	.216
Red - Green	.270	.083	.070	-.055	-.458	.215
Unmelodic - Melodic	.473	-.557	-.267	-.247	.054	-.167
Intimate - Remote	.424	.347	.203	.133	.001	.495
Bad - Good	.684	-.802	-.164	.076	.045	-.075
Strong - Weak	.643	.467	-.169	-.134	-.603	.122
Soft - Loud	.644	.093	.159	.151	.766	.013
Dark - Bright	.556	-.281	-.662	-.110	-.159	.045
Panoramic - Non-panoramic	.557	.373	.039	-.118	-.194	.604
Mild - Intense	.698	-.133	.284	.178	.744	-.124
Unimaginative - Imaginative	.570	-.631	.048	.077	.153	-.374
	17.490	5.419	3.289	3.139	3.033	2.610

of the musically well-trained subjects to the classical excerpts. Because of certain other facts, such a conclusion is unjustifiable.

It will be recalled that in the four analyses discussed prior to this one, the nature of some of the factors was too vague to permit labelling them. As will be seen, this was also true in the next analysis, that is, the analysis of Group C's responses to the popular excerpts. Hence, the amount of information these five solutions provided about their respective listeners' responses was not as great as would be anticipated from simply quoting the figures for the proportion of the total variance accounted for by the solutions. In the analysis now under discussion, this problem of indefinite and therefore undefinable factors did not occur. This was the only analysis in which factors offering little in the way of clarification of the responses of the listeners involved did not emerge. As a result of these facts, the solution for Group C's responses to the classical excerpts can be said to have provided a fuller explanation of the variation present in these listeners' responses than any of the other solutions.

Evaluation, the first factor isolated for Group C's responses to the classical excerpts, accounted for sixteen per cent of the total variance and thirty-one per cent of the common variance. The weights of Factors II, III, IV, and V in terms of the common variance were nineteen, eighteen, seventeen, and fifteen per cent respectively. These statistics make two facts

apparent. First, four of the five factors isolated were of approximately equivalent importance. Second, Evaluation played a dominant role in these listeners' responses to the classical excerpts. None of the analyses thus far discussed for Hypothesis II generated an Evaluation factor carrying such a heavy weight. The closest rival occurred in Group B's responses to the classical excerpts.

Using the weights obtained for the Evaluation factors in the subjects' responses to the classical excerpts, the groups listed in descending order of this factor's importance were Group C, Group B, and Group A. Going back to the three analyses in which a group's responses to all fourteen excerpts were factored, this same procedure resulted in a line-up headed by Group B. In these same analyses, the Evaluation factor was of equal weight in Groups A and C. Thus, refactoring the listeners' responses according to the type of music heard disclosed a rather different picture of Evaluation's role in the responses of the subjects. Limiting, for the present, the discussion to the analyses involving classical music, one finds that Group C, rather than Group B, approached this type of music most critically. Moreover, Group A was, in this respect, least like Group C. Turning to the factor matches for these three analyses, high factorial similarity was demonstrated between the first factors in each match. (See Tables XLIX, L, LI, Appendix D.) It was greatest for the Evaluation

factors in Groups A and B. Although all of these trends had been anticipated at the outset of the study, none had come out in the analyses for the first Hypothesis. Their failure to do so is perhaps an indication that combining the two rather sharply contrasted types of music obscured these trends in the listeners' factor structures.

Comparison of Group C's responses to the classical excerpts with Group A's responses to the popular excerpts disclosed their Evaluation factors were fairly similar. (See Table XXII.) In addition, relatively high fits between Group A's fifth, seventh, and eighth factors, all factors that were too vaguely defined to permit assigning them a label, and Group C's Evaluation factor were found. A one to one type of fit was therefore not available in this factor match. It was when Group B's responses to the popular excerpts were compared with Group C's responses to the classical excerpts. (See Table XX.) Thus, with regard to the Evaluation dimension, Group B's responses approximated Group C's more closely than did Group A's.

Mood - Color was the second factor isolated for Group C's responses to the classical excerpts. Such a factor was also located in the responses of the other two groups of listeners to the same type of music. The correspondence between these factors was high. (See Tables XLIX, L, and LI, Appendix D.) A highly similar factor was also located in both Group A's responses and

TABLE XXII
 FACTOR MATCH FOR GROUP A'S POPULAR WITH GROUP C'S CLASSICAL

Factors	Group C - Classical				
	I	II	III	IV	V
I	-.2076	-.9550	.1057	-.1805	.0326
II	.8424	.0737	.3207	-.1691	.3917
III	-.0042	.4018	.5704	.7143	-.0539
Group A - Popular IV	.1519	-.2642	-.2491	-.3031	.8679
V	.9466	.2263	-.2284	.0122	.0213
VI	-.4209	.2415	.7240	-.4880	.0465
VII	-.8087	.0547	.2392	.4810	-.2334
VIII	.7144	.2530	.2670	-.5887	-.0882

in Group B's responses to the popular excerpts. (See Tables XXII and XX.) In the former case, this was the Mood - Color - Activity factor; in the latter, it was the Color factor. As can be seen from the tables involved, Group A's responses approximated Group C's just slightly more closely than did Group B's.

The third factor to be generated when Group C's responses to the classical excerpts were factored was, like the second, one in which two concepts were combined. They were Complexity and Activity. Their association would seem to imply that the degree of complexity accorded to classical music by Group C's listeners was largely determined by three elements: the amount of variation in the music, the amount of activity in the music, and the amount of order in the music. Once again tempo was viewed as an important indication of the amount of activity in the music. Of the six factor analyses required for Hypothesis II, this marked the only occurrence of a Complexity - Activity factor. The fact that none of the three factor matches involving Group C's responses to the classical excerpts rendered a clear cut comparable factor was therefore expected. (See Tables XX, XXII and XXIII.) Here then is an example of Group C's responses to the classical excerpts departing from both Groups A and B's responses to the popular music.

Potency was the fourth factor located in this particular analysis. As can be seen from Table XX, it was somewhat similar

TABLE XXIII

FACTOR MATCH FOR GROUP C'S POPULAR WITH GROUP C'S CLASSICAL

Factors	Group C - Classical				
	I	II	III	IV	V
I	.9583	.1052	-.0673	-.1100	.2325
II	-.2053	-.9350	.1987	-.2084	.0273
III	-.0349	.3963	.4491	.7931	.1054
Group C - Popular IV	.0646	-.0759	-.1093	-.1125	.9826
V	.0610	.2453	.7528	-.4146	.4443
VI	-.4253	-.3284	-.8417	.0479	.0226
VII	-.5054	-.2825	-.5366	-.0354	.6128

to the second factor generated when Group B's responses to the popular excerpts were factored. It demonstrated even greater similarity with Group B's unlabelled fifth factor. Neither did the comparison with Group A's responses to the popular excerpts produce a clear cut match. (See Table XXII.) Perhaps the reason for this failure to find high factorial similarity in the comparisons just discussed was that Group C's Potency factor was only concerned with this concept. In both of the other groups, Potency was found in conjunction with other concepts. The comparisons of the responses of the three listening groups to the classical excerpts revealed some factorial similarity between Group C's Potency factor and Group A's fifth factor, also Potency. (See Table L, Appendix D.)

Though perhaps not as clearly defined as the previous four factors, there was, in this writer's opinion, sufficient grounds for labelling the fifth factor Imagery. Its factorial similarity with the Imagery factor located for Group A's responses to the popular excerpts was quite high. (See Table XXII.) Some correspondence was also found between the Imagery factor in Group B's responses to the popular excerpts and that in Group C's responses to the classical excerpts. (See Table XX.) This was not as high as that found in the match in Table XXII. Turning to the comparisons of the three groups responses to the classical excerpts, fairly high factorial similarity was found between the Imagery

factors in Groups A and C. (See Table L, Appendix D.) An Imagery factor was not located in Group B for this type of music. However, the fourth factor in Group B was fairly similar to the Imagery factor in Group C. (See Table LI, Appendix D.)

Group C's Responses to the Popular Excerpts. The solution for Group C's responses to the popular excerpts contained seven factors. (See Table XXIV.) For three of these, Factors V, VI, and VII, it was not possible to provide a name. All three lacked sufficient definition to make labelling them possible. These three factors involved thirteen per cent of the total variance. Thus, while the solution accounted for sixty-four per cent of the total variance, the largest amount to be accounted for by any solution in Hypothesis II's analyses, it must be remembered that thirteen per cent of this could not be explained.

As in every analysis except Group A's responses to the popular excerpts, the first factor generated in this sixth analysis was Evaluation. As can be seen from Table XXIII, this factor was very similar to the Evaluation factor located in Group C's responses to the classical excerpts. In fact, all but one of the nine scales that came out on Evaluation in the latter case also came out on the Evaluative factor in the analysis of popular excerpts. This one scale was rhythmic - unrhythmic. Thus, whether listening to the classical or the popular excerpts, the listeners'

TABLE XXIV FACTOR LOADINGS FOR GROUP C ON THE POPULAR EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Pleasant - Unpleasant	.592	.586	-.190	.139	.100	-.006	-.366	-.221
Non-descriptive - Descriptive	.616	-.204	.052	.067	-.738	.050	.083	.114
Vibrant - Still	.599	.196	-.533	-.487	.085	.101	-.146	.036
Repetitive - Varied	.442	-.053	-.050	-.033	-.312	.577	.071	.028
Yellow - Blue	.663	.039	-.791	.038	.078	.117	.004	.120
Happy - Sad	.694	.025	-.804	-.056	.124	-.042	-.155	-.057
Chaotic - Ordered	.746	-.199	-.071	-.175	-.047	-.048	.037	.816
Valuable - Worthless	.660	.770	-.023	-.168	.137	-.066	.105	-.061
Passive - Active	.617	-.050	.567	.503	-.162	-.116	-.009	.015
Colorful - Colorless	.604	.386	-.312	-.263	.520	.062	-.114	.035
Meaningless - Meaningful	.677	-.745	.021	.090	-.314	-.114	.029	-.043
Simple - Complex	.662	-.187	.099	.416	-.169	.575	-.268	-.115
Relaxed - Tense	.579	.166	.009	.711	-.017	-.075	-.160	-.120
Unrhythmic - Rhythmic	.725	-.161	.234	.151	-.077	.047	.783	-.033
Serious - Humorous	.660	.258	.759	.019	.010	-.071	.080	-.069
Slow - Fast	.672	.183	.707	.358	.021	-.083	-.029	-.055
Large - Small	.548	.304	.187	-.523	.305	-.214	-.090	-.003
White - Black	.556	.278	-.593	.310	.067	-.150	.066	-.002
Pictorial - Non-pictorial	.668	.357	-.127	-.074	.716	-.023	-.006	.074
Unique - Commonplace	.585	.502	-.131	-.168	.212	-.442	.086	.200
Emotional - Rational	.677	.459	.203	.063	.342	.007	-.294	.466
Ugly - Beautiful	.682	-.765	.035	-.104	.233	.146	.054	.078
Sincere - Insincere	.540	.697	.172	-.022	.130	-.056	.018	-.067
Red - Green	.593	.034	-.337	-.163	.296	.579	.164	.033
Unmelodic - Melodic	.553	-.619	.088	.023	-.272	-.033	.277	.094
Intimate - Remote	.604	.683	.068	.289	.041	.060	-.117	.176
Bad - Good	.751	-.838	.074	.097	-.096	.122	.035	.098
Strong - Weak	.705	.591	-.091	-.503	.226	-.185	-.097	-.011
Soft - Loud	.670	.145	.310	.725	.082	.014	.138	.035
Dark - Bright	.634	-.262	.695	.016	-.051	.096	.108	.242
Panoramic - Non-panoramic	.647	.266	-.062	-.109	.711	-.228	.027	.050
Mild - Intense	.597	-.226	-.065	.672	-.229	.088	.128	-.114
Unimaginative - Imaginative	.647	-.572	.201	.105	-.461	.226	.023	-.071
	20.867	6.226	4.422	3.278	2.979	1.547	1.221	1.195

judgments of the music's beauty, worth, value, and pleasantness were strongly influenced by the following characteristics: sincerity, melodiousness, and imaginativeness. Their judgments of the popular excerpts were also influenced by the strength and intimacy discernable in it. In addition, it should be noted that the popular music's uniqueness was also considered in the light of these same characteristics. The unique - commonplace scale did not come out strongly on any factor in the analysis of Group C's responses to the classical excerpts.

While the first factor to emerge in the analysis of Group C's responses to the popular excerpts was factorially very similar to the first factor in Table XXI, this factor did not play quite such a dominant role for the popular excerpts as it did for the classical excerpts. In Group C's responses to the popular excerpts, Evaluation accounted for thirty per cent of the common variance. The second factor in this same analysis accounted for twenty-one per cent of the common variance. As noted earlier, the first factor in Group C's responses to the classical excerpts accounted for thirty-one per cent of the common variance, and the second for nineteen per cent.

The factor match between Group B's responses to the classical excerpts and Group C's to the popular excerpts indicated some correspondence between the first factor in each group. (See Table XXV.) It was not as high as that found in Table XXIII, the

TABLE XXV

FACTOR MATCH FOR GROUP B'S CLASSICAL WITH GROUP C'S POPULAR

Factors	Group C - Popular						
	I	II	III	IV	V	VI	VII
I	.7656	.0323	.3308	.4049	.2088	.1051	.2912
II	-.1270	.1208	-.9564	.0081	.2219	-.0507	.0530
III	.2367	.8189	.4189	-.2166	-.1485	-.0887	-.1452
IV	.3111	-.2092	-.1994	.3775	.1364	-.7860	-.2020
V	.4473	.0761	-.0331	-.0981	-.2562	.3019	.7916
VI	-.7547	.0160	.2676	.1312	.5578	-.0181	.1730
VII	-.7054	-.2072	.1156	.6329	.1732	.0967	-.0783

comparison of Group C's responses to the two types of music, or in Table XXVI, the comparison of Group A's responses to the classical excerpts with Group C's responses to the popular excerpts. Those factor matches which involved only the popular excerpts and Group C's responses also brought out that factorial similarity existed among the Evaluation factors in these analyses. (See Tables LIII and LIV, Appendix E.) This was particularly true of the Evaluation factors in Group B and C's responses to the popular excerpts. (See Table LIV, Appendix E.)

Factor II in this analysis was defined by the scales happy - sad, yellow - blue, humorous - serious, fast - slow, bright - dark, white - black, active - passive, and vibrant - still. With the exception of the second last scale, active - passive, all of these had previously loaded on Factor I, the Mood - Color - Activity factor, of Group A's responses to the popular excerpts. The extremely high entry, 0.9958, in Table LIII of Appendix E was therefore not surprising. The correspondence between these two factors was in fact the greatest found in any of the nine required or the six additional factor matches done for Hypothesis II.

This factor's correspondence with Factor II of these same listeners' responses to the classical excerpts was also high. (See Table XXIII.) Some similarity was also found between this second factor and Factor III in Group B's responses to the classical excerpts. (See Table XXV.) This correspondence, however,

TABLE XXVI

FACTOR MATCH FOR GROUP A'S CLASSICAL WITH GROUP C'S POPULAR

Factors	Group C - Popular						
	I	II	III	IV	V	VI	VII
I	-.8103	-.1972	-.1434	.1066	.1813	.3656	.3255
II	.3852	-.1290	-.1346	.8940	-.0917	.0228	.0928
III	.1014	-.9733	.0522	.0804	.1071	.1002	.1077
IV	.1573	.7093	.6833	-.0216	-.0620	.0005	-.0308
V	.5011	.0839	-.8216	-.0923	-.1995	-.0967	-.0964
VI	.5717	.1052	-.0253	.1863	.5576	.1391	.5446
VII	-.3873	-.2125	-.0623	-.2113	.8427	-.1568	-.1467

Group A -
Classical

was less than that in the case just cited. It was also less than that between the second factors in Group C's responses to the popular excerpts and Group A's responses to the classical excerpts. (See Table XXVI.) Thus, with regard to this factor, Group C's responses to the popular excerpts definitely approximated much more closely Group A's to both types of music than any other groups.

Group C's third factor in the analysis of their responses to the popular excerpts can be described as a Potency one in which there was a tendency for Activity to come out. This marked Activity's second emergence in this particular analysis. That it came out on this factor can probably be taken to indicate that popular music which for them, was active would more likely be described as strong than weak. Loudness was, as it had been in the five previous analyses, an important indicator of the music's strength. This third factor showed its greatest degree of correspondence with Factor II in Group B's responses to the classical music. (See Table XXV.) It also demonstrated some similitude with Factor II in Group B's responses to the popular excerpts. (See Table LIV, Appendix E.)

Imagery, Factor IV in Group C's responses to the popular excerpts, accounted for fourteen per cent of the common variance. Its weight in the factor structure of Group C's responses to the popular excerpts was therefore slightly less than Factor III's.

The latter accounted for sixteen per cent of the common variance. This fourth factor was one which corresponded to a rather high degree with factors which emerged in four of the six analyses done for Hypothesis II. It demonstrated its greatest factorial similarity with Factor V of Group C's responses to the classical excerpts. (See Table XXIII.) The next greatest degree of similarity was with the second factor in Group A's responses to the classical excerpts. (See Table XXVI.) Factor IV in Group A's responses to the popular excerpts and Factor III in Group B's responses to the same excerpts provided the next two instances of fairly high factorial similarity. (See Tables LIII and LIV, Appendix E.)

Conclusions

The purpose of this second section of Chapter IV was to determine if individuals with a given musical background listened to classical music differently than they listened to popular music. Due to the unexpected results of the analyses for Hypothesis I, two investigations not directly concerned with testing Hypothesis II were undertaken. These two investigations involved comparing the three groups of listeners' responses to the classical excerpts and to the popular excerpts. They provided a second look at the relationship between the musical background of the subjects and their responses to the music. The findings of these two additional investigations have been summarized in the next three paragraphs.

Following this, the results obtained when Hypothesis II was tested have been summarized.

When each group's responses to the same type of music were compared, it was found that the responses of the groups most dissimilar with regard to musical background approximated each other most closely. This generalization could be made for the responses to both the classical excerpts and the popular excerpts. It was particularly true of the subjects' responses to the popular excerpts. For these responses, the least resemblance occurred between Groups A and B. While Group B's responses demonstrated some affinity to Group C's, this did not match the strong correspondence between Group A and Group C's responses.

For the classical excerpts, the correspondence between Groups A and C's responses was not so striking as it was when their responses to the popular excerpts were compared. The reason for this was the similarity found between the responses of Groups A and B. Three of the most important factors in Group A's responses, Factors I, III, and IV, were very similar to the first three factors isolated in the analysis of Group B's responses. However, since for every factor isolated in Group C's responses to the classical excerpts there was a highly similar factor isolated in Group A's responses, it could still be said that the best match occurred between the responses for Groups A and C.

Thus far in the study, three methods have been used to examine the responses the three groups of listeners made to the music on the test. In the first method, the one used to test Hypothesis I, each group's responses to all of the excerpts on the test were factor analyzed. The three factor structures which resulted from this step were then compared. In the second method, the one used to make the two investigations not directly concerned with testing a hypothesis, each group's responses to the classical excerpts and to the popular excerpts on the test were separately factor analyzed. The factor structures for a given type of music were then compared. Of these two approaches, the second was more fruitful. It brought to light information lost when the first method was used. For example, when the first method was employed, it was found that Groups A and C's responses were very similar. However, when the second method was employed, it was found that the similarity between Groups A and C's responses seemed more striking for the popular excerpts than for the classical excerpts. Another illustration of losing information when the type of music was not considered occurred with regard to the Evaluation factor. From the results of the analyses employing the first method, it could be said that all the subjects used an evaluative approach when listening to the music. This statement could also be made for the results of the analyses employing the second method. However, it could also be said that the members in all three groups

were slightly more critical when listening to the classical excerpts than when listening to the popular excerpts. This trend became less pronounced as the subjects' musical backgrounds increased.

To test Hypothesis II, a third method of analyzing the data was used. It involved separately factor analyzing each group's responses to the classical excerpts and the popular excerpts. Each group's factor structure for the classical excerpts was then compared with each group's factor structure for the popular excerpts. These analyses revealed both similarities and differences in the way in which the three groups of listeners responded to the classical and to the popular excerpts. These similarities and differences have been summarized in the following discussion. In this summary, references are made to Table XXVII. Given in this table is the name and the weight of each factor isolated in each group's factor structure. These weights are percentages based upon the common variance. The analyses are identified by the following small Roman numerals:

- i - Group A's responses to the classical excerpts
- ii - Group A's responses to the popular excerpts
- iii - Group B's responses to the classical excerpts
- iv - Group B's responses to the popular excerpts
- v - Group C's responses to the classical excerpts
- vi - Group C's responses to the popular excerpts

It was hoped that this table would help to provide a more concrete picture of the results of the analyses.

TABLE XXVII

THE FACTORS ISOLATED IN EACH FACTOR ANALYSIS
FOR HYPOTHESIS II

Factors	Analyses					
	i	ii	iii	iv	v	vi
I	23 [*]	19 ^{xz}	28 [*]	26 [*]	31 [*]	30 [*]
II	20 ⁺	19 [*]	18 ^{wyz}	25 ^{yzb}	19 ^x	21 ^{xz}
III	15 ^x	14 ^y	17 ^x	19 ⁺	18 ^{wz}	16 ^{yz}
IV	13 ^{wyx}	12 ⁺	14 ^c	12 ^a	17 ^y	14 ⁺
V	12 ^y	12 ^{**}	8 ^{**}	10 ^{**}	15 ⁺	7 ^{**}
VI	9 ^{**}	9 ^{**}	8 ^{**}	8 ^{**}		6 ^{**}
VII	8 ^{**}	9 ^{**}	7 ^{**}			6 ^{**}
VIII		6 ^{**}				

* Used to indicate the factor Evaluation

** Used to indicate factors which could not be labelled

⁺ Used to indicate the factor Imagery

^w Used to indicate the Complexity component in a factor

^x Used to indicate the factor Mood - Color, or this component in a factor

^y Used to indicate the factor Potency, or this component in a factor

^z Used to indicate the Activity component in a factor

^a Used to indicate the factor Color

^b Used to indicate the Mood component in a factor

^c Used to indicate the factor providing a comment on the composer's skill or craftsmanship

Evaluation was isolated as a factor in all six of the analyses. Moreover, with the exception of the analysis of Group A's responses to the popular excerpts (Analysis ii), this was always the first factor to be isolated. Since Evaluation's weight in the exception just cited was equal to that of the first factor, it can be said that all of the subjects tended to approach all of the music presented to them, regardless of its classical or popular nature, in a rather critical frame of mind. Many of the scales loading high on these Evaluation factors were the same. Hence, the factorial similarity found among these factors was high. This was particularly true of the Evaluation factors isolated in Group C's responses to both types of music. The factorial similarity between them was much greater than that between Group C's responses to the classical excerpts and Group B's responses to the popular excerpts or Group A's responses to the popular excerpts. Group B's Evaluation factors also resembled each other more closely than did Evaluation in Group B's responses to the classical excerpts and Evaluation in either Groups A or C's responses to the popular excerpts. However, the Evaluation factor located in Group A's responses to the classical excerpts corresponded more closely to that found in Group B's rather than Group A's responses to the popular excerpts.

Evaluation's weight in the factor structures of the three groups of listeners was invariably heavier for the classical

excerpts than for the popular excerpts. (See Table XXVII.) This may indicate that the subjects all tended to approach listening to classical music more critically than they did listening to popular music. It should be noted, however, that the difference in this factor's weight for a group's responses to classical and popular excerpts was not large. In fact, for Group C it was a matter of one per cent.

As can be seen from Table XXVII, Evaluation's weight in each group's factor structure varied considerably. For example, in Group A's responses to the popular excerpts, its weight was equal to that of the first factor, Mood - Color - Activity. (Analysis ii) In Group A's responses to the classical excerpts, however, there was a difference in weight between Evaluation and the second factor, Imagery. (Analysis i) It must be acknowledged, however, that in the example just quoted this difference was not great. The difference in weight between Evaluation and Factor II was even less for Group B's responses to the popular excerpts. (Analysis iv) These listeners were definitely more dependent upon Evaluation when listening to the classical excerpts. (Analysis iii) Evaluation's weight for Group C's responses to the classical excerpts was considerably more than the second factor's. (Analysis v) While Evaluation accounted for practically one-third of the common variance in Group C's responses to the popular excerpts, its importance here was somewhat diminished due to the

second factor's weight. (Analysis vi)

Imagery was located in all the factor structures except Group B's responses to the classical excerpts. Its weight was greatest in the analyses for Group A and Group C's responses to the classical excerpts. (Analyses i and v) Once again Group C's responses to the two types of music displayed the greatest factorial similarity on this dimension. The similarity between the Imagery factors in the solutions for Group A's responses to the classical excerpts and Group B's responses to the popular excerpts was almost equal to that displayed in the first example. The Imagery factors' correspondence in Group A's responses to the classical excerpts and Group C's responses to the popular excerpts was also very high. The lowest degree of correspondence on this factor was found between Group A's responses to the popular excerpts and Group C's responses to the classical excerpts.

In three of the analyses, the factor Mood - Color was located. All three of these analyses were for the classical excerpts. (Analyses i, iii, and v) In two of the remaining analyses, Groups A and C's responses to the popular excerpts, Mood - Color was found in conjunction with Activity. (Analysis ii and vi) In the one remaining analysis, Group B's responses to the popular excerpts, Color was isolated as a separate factor. (Analysis iv) Despite the differences in the components of the factors involved, similarities among them existed. This was particularly true for

three matches. Listed in a decreasing order of the degree of these correspondences, they were as follows: the Mood - Color factor in Group A's responses to the classical excerpts and the Color factor in Group B's responses to the popular excerpts; the Mood - Color factor in Group C's responses to the classical excerpts and the Mood - Color - Activity factor in the same group's responses to the popular excerpts; and, the Mood - Color factor in Group B's responses to the classical excerpts and the Mood - Color - Activity factor in Group A's responses to the popular excerpts.

In only two of the six analyses was Potency located as a separate factor. These were the factor structures of Group A's responses to the popular excerpts (Analysis ii), and Group C's responses to the classical excerpts (Analysis v). The degree of correspondence between these two factors was not found to be particularly high. This is not to say that Potency failed to come out in the other four factor structures. It did. However, in these instances it was always one component of a factor.

The composition of those factors in which Potency was a component varied. In the analysis of Group C's responses to the popular excerpts (Analysis vi), Potency was found in conjunction with Activity. In Group B's factor structure for the popular selections (Analysis iv), Potency was found in conjunction with Activity and Mood. The factor match between Analyses iv and vi disclosed a fairly high degree of correspondence between these

two factors. In both Groups A and B's factor structures for the classical excerpts (Analyses i and iii), Potency was found in conjunction with Activity and Complexity. The factorial similarity between these two was also fairly high. Even greater factorial similarity was found between the factors involving Potency in Group B's responses to the classical and popular excerpts. In none of the three factor matches in which Group A's responses to the popular excerpts were compared with one of the group's responses to the classical excerpts was a factor very similar to Group A's Potency one found. The same statement cannot be made about Group C's Potency factor in Analysis v. Its correspondence with the fifth factor in Group B's factor structure for the popular excerpts was quite high. The fifth factor was, however, one too vaguely defined to warrant labelling.

In none of the six factor analytic solutions for Hypothesis II was Activity generated as a separate factor. The composition of those factors in which Activity emerged as one of the components varied. As is obvious from the previous discussion of Potency, these two were frequently associated. In four of the six analyses, Activity and Potency occurred in conjunction with each other. (See Analyses i, iii, iv, and vi.) In Group A's responses to the popular excerpts it combined with Mood and Color. (Analysis ii.) In Group C's responses to the classical excerpts it combined with Complexity. (Analysis v.)

In Group B's responses to the classical excerpts (Analysis iii), there emerged a factor which may indicate concern on the part of these listeners about the composer's skill or craftsmanship. This was the only instance in which this factor occurred. Comparison of Group B's responses to the classical and the popular excerpts revealed that this fourth factor showed a rather high degree of correspondence with the third, Imagery, in this group's responses to the popular excerpts. This may then be a case in which an attempt was made to name a factor not clearly defined.

In each of the six analyses for Hypothesis II, the proportion of the total variance accounted for by the solution was over fifty per cent. These figures were in general, higher than those for Hypothesis I's three analyses. However, with the exception of Analysis v, that is, the analysis of Group C's responses to the classical excerpts, the problem of vague, undefinable factors was encountered. As can be seen from Table XXVII, these unidentifiable factors tended to substantially decrease the explainable proportion of the common variance, particularly for Analyses ii and iii. Hence, although these solutions accounted for more of the total variance, they did not provide a fuller explanation of the listeners' responses. The occurrence of these unidentifiable factors would seem to be an indication that the test needs refining.

Examination of the relationships brought out by the factor matches for Hypothesis II's six factor analytic solutions

indicated the following conclusions:

1. Group A's responses to the classical excerpts were very similar to those made by Group B to the popular excerpts. The correspondence between these two categories was greater than that between Group A's responses to the classical and popular excerpts, or between Group A's responses to the classical excerpts and Group C's responses to the popular excerpts. Neither of the last two relationships just named seemed to be stronger than the other.
2. Group B's responses to the popular excerpts were very similar to their responses to the classical excerpts. In other words, these listeners seemed to approach both types of music in much the same way. This was in contrast to Group A's listeners who seemed more prone to vary their approach according to the type of music.
3. Compared with the resemblance between Group B's responses to the two types of music, that between Group B's responses to the classical excerpts and Group A's responses to the popular excerpts was slight. There seemed to be a stronger one between Group B's responses to the classical excerpts and Group C's responses to the popular excerpts.

4. When compared with the three groups of listeners' responses to the popular excerpts, Group C's responses to the classical excerpts were most similar to their responses to the popular excerpts. These listeners, like those in Group B, seemed to vary their approach only slightly when moving from classical to popular excerpts.

In view of the above conclusions, the second null hypothesis was rejected. There was a relationship between the subjects' musical backgrounds and their semantic factor responses to the classical and to the popular excerpts of music.

HYPOTHESIS III

The degree of familiarity with musical selections is unrelated to the semantic factor structure of an individual's responses.

Method

To test this hypothesis, the subjects' responses to the fourteen musical excerpts were grouped into two categories -- Familiar Excerpts and Strange Excerpts. As explained in Chapter III, the information necessary to carry out this step was obtained from the first scale on the semantic differential test. In order for an excerpt to be placed in the Familiar Excerpts category, either the first or second spaces of the five-point familiar - strange scale had to be marked by the listener. If the answer

to this scale was instead in the third, fourth, or fifth spaces, the excerpt was placed in the category Strange Excerpts. Since each of the one hundred and thirty-six subjects listened to fourteen excerpts, there was a total of 1,904 excerpts to be classified. Of this total, 1,096 were considered familiar by the listeners and 808 strange. Thus, fifty-seven per cent of the excerpts presented to the subjects were regarded by them as very familiar or familiar.

A separate factor analysis was done on the responses in each category. The results of these two analyses are reported in Tables XXVIII and XXIX. Following this, the factors which were generated were labelled. The name given a factor reflects the unifying theme of the scales loading at 0.5 or greater. Because there were only two categories for the subjects' responses, only one factor match was necessary. In doing it, the strange excerpts were rotated so as to attain the best possible fit with the familiar excerpts. The results of this factor match can be found in Table XXX.

Results and Discussion

The Subjects' Responses to the Familiar Excerpts. When factored, the listeners' responses to the familiar excerpts generated a total of five factors which together accounted for fifty-two per cent of the total variance. (See Table XXVIII.) Of these five factors, one, Factor V, was not labelled. Too

TABLE XXVIII

FACTOR LOADINGS FOR THE FAMILIAR EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V
Pleasant - Unpleasant	.506	.621	.135	-.292	.110	.062
Non-descriptive - Descriptive	.376	-.125	.061	.084	-.582	.104
Vibrant - Still	.539	.032	-.640	-.339	.110	-.020
Repetitive - Varied	.505	.015	.067	-.013	-.199	.679
Yellow - Blue	.460	.089	-.060	-.667	-.021	.053
Happy - Sad	.620	.113	-.034	-.774	.059	.061
Chaotic - Ordered	.394	-.505	-.310	.048	.132	-.152
Valuable - Worthless	.562	.582	-.170	.001	.276	-.286
Passive - Active	.505	-.014	.570	.397	-.148	.019
Colorful - Colorless	.522	.329	-.358	-.250	.472	-.011
Meaningless - Meaningful	.488	-.552	.148	-.000	-.379	.132
Simple - Complex	.559	-.005	.513	-.141	-.159	.501
Relaxed - Tense	.597	.302	.669	-.175	.077	.147
Unrhythmic - Rhythmic	.350	-.442	.042	.237	-.074	-.303
Serious - Humorous	.633	.176	-.053	.757	.044	-.156
Slow - Fast	.587	.202	.472	.567	.037	-.022
Large - Small	.387	.150	-.489	.240	.238	-.109
White - Black	.523	.231	.251	-.618	.095	-.130
Pictorial - Non-pictorial	.592	.163	-.109	-.112	.734	-.054
Unique - Commonplace	.436	.232	-.322	.052	.302	-.429
Emotional - Rational	.424	.249	.018	.189	.566	.076
Ugly - Beautiful	.659	-.744	-.079	.096	-.250	.163
Sincere - Insincere	.512	.636	-.055	.216	.184	-.153
Red - Green	.335	-.061	-.341	-.094	.216	.399
Unmelodic - Melodic	.489	-.646	-.019	.103	-.142	-.202
Intimate - Remote	.491	.554	.273	.022	.320	.082
Bad - Good	.667	-.770	.108	.096	-.157	.168
Strong - Weak	.597	.397	-.567	.124	.305	-.096
Soft - Loud	.613	.175	.751	.028	.079	-.101
Dark - Bright	.589	-.270	-.092	.707	-.082	-.024
Panoramic - Non-panoramic	.530	.170	-.120	-.023	.686	-.122
Mild - Intense	.567	-.084	.709	-.170	-.164	.045
Unimaginative - Imaginative	.537	-.427	.299	.102	-.469	.186
	17.114	4.767	4.111	3.606	3.057	1.573

few scales loaded at or above 0.5 to make identifying it possible.

Nine scales loaded high on Factor I: good - bad, beautiful - ugly, melodic - unmelodic, sincere - insincere, pleasant - unpleasant, valuable - worthless, intimate - remote, meaningful - meaningless, and ordered - chaotic. Their evaluative nature is apparent. This Evaluation factor accounted for twenty-eight per cent of the common variance and fourteen per cent of the total variance. The next factor which emerged in this solution accounted for twenty-eight per cent of the common variance and fourteen per cent of the total variance. The next factor which emerged in this solution accounted for twenty-four per cent of the common variance and thirteen per cent of the total variance. Evaluation therefore did not play the dominant role it had in some of the earlier analyses. It is, however, rather interesting that the subjects approached these familiar excerpts critically. That they were familiar apparently did not deter this response. Nor did the excerpts' familiarity seem to relegate this listening approach to one of little importance in their responses.

Factor II in the solution for the familiar excerpts combined Potency, Activity, and Complexity. That these three were all components of the same factor perhaps indicates that, for the familiar excerpts, one functioned as a sign of the other. For example, those which were potent were probably also viewed as being active and complex. As in the previous analyses for

Hypotheses I and II, the music's strength, that is, potency, appeared to be closely related to the dynamic level, and its activity to the tempo. Thus complexity in familiar music was signified by loud, strong, active music.

Twenty-one per cent of the common variance and eleven per cent of the total variance were accounted for by Factor III. This was a Mood - Color factor in which tempo was of some consequence. Tempo apparently influenced the listeners' decision about the mood of these familiar excerpts.

Imagery, Factor IV in the factor analytic solution for the familiar excerpts, accounted for eighteen per cent of the common variance and nine per cent of the total variance. Its presence seemed to be associated with emotion. Hence, when unable to discern imagery in these familiar excerpts, the listeners apparently viewed the music as being rational.

The Subjects' Responses to the Strange Excerpts. Factor analysis of these excerpts produced a six factor solution which accounted for exactly the same amount of the total variance as the analysis for the familiar excerpts did. (See Table XXIX.) Due to the inability to label Factors V and VI in the solution, nine per cent of this total variance could not be explained.

Factor I, again an Evaluation one, accounted for twenty-four per cent of the common variance and twelve per cent of the

TABLE XXIX FACTOR LOADINGS FOR THE STRANGE EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
Pleasant - Unpleasant	.442	-.529	.230	.160	-.283	-.047	-.023
Non-descriptive - Descriptive	.470	.047	-.647	.053	.016	.062	.205
Vibrant - Still	.483	.037	.321	-.282	-.511	-.190	-.035
Repetitive - Varied	.634	.134	-.056	-.034	-.128	.743	.210
Yellow - Blue	.463	-.108	.046	.197	-.531	.142	.329
Happy - Sad	.657	-.289	.061	.236	-.704	.087	.104
Chaotic - Ordered	.521	.538	.017	-.086	-.216	-.380	.184
Valuable - Worthless	.482	-.548	.384	-.092	-.131	-.089	.012
Passive - Active	.540	.048	-.245	.266	.627	.112	-.014
Colorful - Colorless	.560	-.204	.601	-.053	-.392	-.025	.020
Meaningless - Meaningful	.501	.315	-.604	.102	.122	-.010	-.112
Simple - Complex	.492	.023	-.130	.404	.163	.534	-.006
Relaxed - Tense	.438	-.314	-.010	.537	-.030	.200	-.102
Unrhythmic - Rhythmic	.523	.388	-.294	.045	.138	-.409	.313
Serious - Humorous	.549	.102	.096	-.440	.517	-.246	.092
Slow - Fast	.514	.103	.062	.186	.677	.001	.083
Large - Small	.449	.004	.299	-.596	.015	.016	-.065
White - Black	.483	-.344	.058	.485	-.349	-.020	.060
Pictorial - Non-pictorial	.525	-.212	.679	-.038	-.067	.095	.058
Unique - Commonplace	.380	-.091	.348	-.292	.134	-.299	.241
Emotional - Rational	.449	-.007	.506	-.050	.070	-.022	.430
Ugly - Beautiful	.696	.775	-.155	-.048	.211	.101	-.115
Sincere - Insincere	.406	-.447	.355	-.144	.119	-.068	.200
Red - Green	.494	-.098	.037	-.246	-.124	.096	.631
Unmelodic - Melodic	.444	.589	-.262	.088	.109	-.061	.073
Intimate - Remote	.431	-.438	.277	.256	-.059	.033	.302
Bad - Good	.671	.765	-.190	.063	.184	.067	-.089
Strong - Weak	.614	-.300	.312	-.642	.022	.001	.116
Soft - Loud	.585	-.029	.076	.749	.121	.015	-.047
Dark - Bright	.571	.471	.043	-.331	.467	-.078	-.116
Panoramic - Non-panoramic	.486	-.357	.577	-.119	.001	-.069	.083
Mild - Intense	.655	-.010	-.115	.789	.055	.049	-.122
Unimaginative - Imaginative	.533	.368	-.570	.155	.079	.177	-.102
	17.143	4.082	3.675	3.570	3.049	1.518	1.249

total variance. As can be seen from Table XXX, the Evaluation factors in the two analyses for Hypothesis III were very similar. In fact, about the only difference between them was that for the familiar excerpts the listeners seemed to evaluate on a greater number of dimensions. Hence, when it came to the familiar excerpts, the subjects were slightly more critical. It is rather interesting that this tendency to be more critical was exhibited for the excerpts with which the subjects considered themselves to be familiar rather than those which they described as strange.

Imagery was the second factor to be isolated in the subjects' responses to the strange excerpts. It, too, had been located in the factor structure of the listeners' responses to the familiar excerpts. (See Factor IV, Table XXVIII.) The degree of correspondence between these two factors was also high. (See Table XXX.) Even the shift in position which the Imagery factor experienced in this analysis had little effect upon the amount of the common variance for which it accounted. This was increased by only three per cent.

Like Factor II, the third factor generated in this particular analysis accounted for twenty-one per cent of the common variance and eleven per cent of the total variance. This factor was identified as Potency. Examination of the scales loading high on this factor indicated that the music's dynamic level again functioned as an important determinant of the strength attributed

TABLE XXX

FACTOR MATCH FOR STRANGE EXCERPTS WITH FAMILIAR EXCERPTS

		Familiar Excerpts				
Factors		I	II	III	IV	V
Strange Excerpts	I	-.9823	-.1362	.0471	.0004	.1194
	II	.2792	-.1027	.0430	.9496	-.0887
	III	-.0234	.9509	-.2999	.0703	-.0177
	IV	.2094	.4799	.8480	.0363	-.0734
	V	.0672	.1990	-.1361	-.1486	.9567
	VI	.2162	-.0248	.2104	.7404	.6002

to the music. This factor showed a strong resemblance to the second factor isolated in the analysis for the familiar excerpts. (See Table XXX.)

Factor IV comprised three elements: Mood, Color, and Activity. Activity's occurrence with Mood is probably an indication that this element influenced the subjects' decision about what mood the music portrayed. Fast, active, vibrant music was linked with happiness and humor. This factor accounted for eighteen per cent of the common variance and nine per cent of the total variance. Its similarity to a factor located in the analysis of the familiar excerpts, while not as high as that for the first three factors in the strange excerpts' solution, was still fairly strong. (See Table XXX.)

Conclusions

From the preceding discussion, it is obvious that for every identifiable factor isolated in the subjects' responses to the familiar excerpts there was a corresponding one isolated in their responses to the strange excerpts. Indeed, the degree of similarity between the responses for these two types of music was rather remarkable. As a consequence, the null hypothesis was accepted. Whether the music was familiar or strange, the subjects in this study utilized the same listening approaches.

HYPOTHESIS IV

There is no relationship between the musical background of an individual and his semantic factor responses to selected excerpts of familiar and strange music.

Method

To test this hypothesis, the subjects' responses to the fourteen musical excerpts were grouped into the three categories of musical background described in Chapter III. Each group's responses were then sub-divided into two categories: responses to familiar excerpts and responses to strange excerpts. Only a mark in the first or second spaces of the familiar - strange scale led to the classification familiar. All excerpts for which the third, fourth, or fifth spaces of this scale were marked were classified as strange. On the basis of this method of classifying the excerpts, 334 or fifty-four per cent were considered familiar by Group A's listeners, and 282 or forty-six per cent strange. For Group B, these figures changed only slightly: they considered fifty-five per cent, that is, 337, of the excerpts familiar, and forty-five per cent or 279 strange. The listeners in Group C were familiar with a greater proportion of the excerpts than either Groups A or B's listeners. Four hundred and twenty-five were described by them as familiar and 247 as strange. This involved sixty-three per cent and thirty-seven per cent respectively.

This second classification produced six categories of responses, each of which was separately factor analyzed. The results of these analyses are presented in Tables XXXI, XXXII, XXXIV, XXXVI, XL, and XLIII. The factors which emerged in these analyses were then labelled. Unless otherwise indicated, each factor's name reflects the unifying theme of the scales for which loadings of 0.5 or greater were found.

Once the factor analyses were completed, comparisons were made between a given group's factor structures for familiar excerpts and for strange excerpts. In addition, each group's factor structure for familiar excerpts was also compared with the factor structures of the other two groups for strange excerpts. Hence, a total of nine factor matches were done. These were schematically depicted in Chapter III. (See p. 81.) The results of these factor matches are reported in Tables XXXIII, XXXV, XXXVII, XXXVIII, XXXIX, XLI, XLII, XLIV, and XLV.

As a purely exploratory measure, factor matches were also done for the three listening group's responses to the same type of music. This involved an additional six factor matches, three for the responses to familiar excerpts and three for the responses to strange excerpts. These comparisons may be found in Appendix F and Appendix G respectively.

These additional comparisons were not necessary for establishing whether Hypothesis IV should be accepted or rejected.

They were done in the belief that further clarification of the listeners' factor structures would result if degree of familiarity and musical background were considered simultaneously. References are made to the results of these factor matches as well as the required ones at various points in the ensuing discussion.

Results and Discussion

Group A's Responses to the Familiar Excerpts. Factoring Group A's responses to the familiar excerpts produced a seven-factor solution which accounted for fifty-eight per cent of the total variance. (See Table XXXI.) Of these seven factors, four were identifiable, while three, Factors V, VI, and VII, were too inadequately defined to make labelling them possible. Factor V, however, was briefly discussed since three scales loaded fairly high on it. Together these three unidentified factors involved thirteen per cent of the total variance. Thus, only forty-five per cent of the total variance was explained.

Evaluation, the first factor isolated in this analysis, accounted for twenty-three per cent of the common variance and thirteen per cent of the total variance. It did not play a dominant role in these listeners' responses to the familiar excerpts since the second, third, and fourth factors to be isolated accounted for nineteen, eighteen, and seventeen per cent respectively of the common variance, and eleven, eleven, and ten per cent

TABLE XXXI FACTOR LOADINGS FOR GROUP A ON THE FAMILIAR EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Pleasant - Unpleasant	.518	.558	-.308	.088	.224	-.205	.080	.070
Non-descriptive - Descriptive	.666	-.023	-.006	-.496	-.041	.615	.088	-.177
Vibrant - Still	.499	.005	-.424	.071	-.542	-.136	-.020	.024
Repetitive - Varied	.712	-.060	-.096	-.139	.106	.110	.810	-.024
Yellow - Blue	.520	.113	-.692	.026	-.024	-.119	.107	.039
Happy - Sad	.688	.216	-.784	.060	.045	.106	.079	-.061
Chaotic - Ordered	.541	-.562	.020	.022	-.378	.008	-.158	.239
Valuable - Worthless	.612	.400	-.001	.608	.030	-.243	-.131	.076
Passive - Active	.648	.051	.306	-.111	.261	.615	.112	.283
Colorful - Colorless	.537	.251	-.319	.503	-.182	-.267	.116	.023
Meaningless - Meaningful	.433	-.393	.007	-.500	.020	.037	.137	-.092
Simple - Complex	.549	-.033	-.149	-.169	.569	-.013	.411	.063
Relaxed - Tense	.586	.366	-.152	.024	.640	-.138	.004	.010
Unrhythmic - Rhythmic	.632	-.385	.090	.031	-.105	.681	.015	-.006
Serious - Humorous	.668	.177	.748	.158	-.184	.128	-.022	.033
Slow - Fast	.578	.267	.588	.008	.360	.144	-.094	.043
Large - Small	.386	.015	.145	.514	-.259	.043	.162	.074
White - Black	.576	.276	-.617	.149	.283	-.009	-.128	.030
Pictorial - Non-pictorial	.662	.166	-.210	.765	-.004	.021	-.047	-.049
Unique - Commonplace	.452	.200	.090	.296	-.451	-.138	-.257	.165
Emotional - Rational	.536	.314	.147	.202	-.093	-.105	.249	.541
Ugly - Beautiful	.675	-.716	.161	-.276	-.044	.111	.152	-.151
Sincere - Insincere	.621	.705	.104	.252	-.010	.107	-.189	.045
Red - Green	.693	.033	.147	.115	-.311	-.157	.307	-.665
Unmelodic - Melodic	.611	-.704	.224	-.110	.016	.175	-.117	-.092
Intimate - Remote	.579	.564	.021	.209	.169	-.032	.105	.419
Bad - Good	.693	-.716	.149	-.359	.073	.056	.128	.064
Strong - Weak	.516	.232	.101	.451	-.491	-.071	.038	-.027
Soft - Loud	.576	.258	.090	.044	.689	-.031	-.090	.124
Dark - Bright	.613	-.318	.693	-.145	-.075	.031	.053	-.029
Panoramic - Non-panoramic	.550	.083	-.012	.707	-.010	-.006	-.194	-.071
Mild - Intense	.597	-.018	-.136	-.109	.744	.023	.048	.096
Unimaginative - Imaginative	.518	-.353	.157	-.500	.215	.212	-.009	-.168
	19.240	4.390	3.680	3.549	3.328	1.674	1.373	1.246

respectively of the total variance. These first four factors, then, were of approximately equivalent importance for these non-musicians. Evaluation was, however, given the most emphasis.

Scales loading high on Group A's Evaluation factor in their responses to the familiar excerpts were good - bad, beautiful - ugly, sincere - insincere, melodic - unmelodic, intimate - remote, ordered - chaotic, and pleasant - unpleasant. The linkage pattern for these scales was bad, ugly, insincere, unmelodic, remote, chaotic, and unpleasant. From this list, it appears that the Group A listeners demanded sincerity, melodiousness, intimacy, and order in these familiar excerpts. Their failure to discern these characteristics in this music led to the judgments ugly, bad, and unpleasant.

Because the scales happy - sad, humorous - serious, bright - dark, yellow - blue, white - black, and fast - slow loaded high on Factor II, it was labelled Mood - Color. That the scale fast - slow appeared in this cluster seems to indicate their mood to these listeners.

Six scales loaded high on Factor III: pictorial - non-pictorial, panoramic - non-panoramic, large - small, colorful - colorless, meaningful - meaningless, and imaginative - unimaginative. In addition, the scale descriptive - non-descriptive loaded very close to 0.5. With the exception of the scale large - small, the significance of which could not be explained by this

investigator for this factor, these scales all seem to define an Imagery factor. With this factor, these subjects seem to be saying that the meaning of these familiar excerpts resided in their connotative power. That is, the excerpts involved were apparently meaningful if the power of evoking such concrete characteristics as pictures, panoramas, imagery, or descriptions could be imputed to them. It will be recalled that, for these same listeners, the classical excerpts' meaning also appeared to reside in their Imagery.

Factor IV's defining scales referred to the music's strength (intense - mild, tense - relaxed, strong - weak), the music's volume (loud - soft), the music's complexity (complex - simple), and the music's activity (vibrant - still). The linkage pattern for these scales was intense, loud, tense, complex, vibrant, and strong. This factor was labelled Potency. From the list of scales loading high on this factor and the linkage pattern for them, it appears that both the music's loudness and activity functioned as indicators of its strength or potency. Moreover, all three, that is, potency, volume, and activity, were related to complexity. Familiar music which was considered intense, loud, tense, vibrant, and strong would probably also be considered complex by these listeners.

Of the five factors discussed for Group A's responses to the familiar excerpts, Factor V was the most confusing. Three

scales, rhythmic - unrhythmic, active - passive, and descriptive - non-descriptive, loaded above 0.5 on it. No scales loaded in the 0.4 to 0.5 range. Two of the three defining scales, rhythmic - unrhythmic and active - passive, seem to go together. Logically they refer to the movement in the music. The third scale, descriptive - non-descriptive, seems to be unrelated to the first two, for, on intuitive grounds it appears to refer to the music's programmatic element. Since this investigator was unable to reconcile these two, this factor was not labelled. The importance of this factor was not great as it accounted for only nine per cent of the common variance and five per cent of the total variance.

Group A's Responses to the Strange Excerpts. When Group A's responses to the strange excerpts were factored, seven factors accounting for fifty-seven per cent of the total variance were isolated. (See Table XXXII.) Five of these seven factors were identifiable. The two unidentifiable ones, Factors VI and VII, involved nine per cent of the total variance for which the solution presumably accounted. The weights of the seven factors in these listeners' factor structure for the strange excerpts were, in order of their emergence, twenty-four, twenty, fifteen, thirteen, thirteen, eight, and seven per cent of the common variance. In terms of the total variance, they accounted for

TABLE XXXII FACTOR LOADINGS FOR GROUP A ON THE STRANGE EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Pleasant - Unpleasant	.512	-.633	.240	-.037	.163	-.106	.001	-.119
Non-descriptive - Descriptive	.479	.011	-.652	-.156	-.030	-.044	.003	.162
Vibrant - Still	.552	.216	.236	.289	.546	-.237	-.059	-.093
Repetitive - Varied	.673	.080	-.043	.033	.084	-.049	.797	.140
Yellow - Blue	.580	-.184	-.065	-.033	.698	-.039	.070	.217
Happy - Sad	.683	-.308	.095	-.148	.699	-.227	.123	-.052
Chaotic - Ordered	.516	.570	-.126	.065	.192	-.133	-.336	-.066
Valuable - Worthless	.528	-.468	.375	.286	.202	-.095	-.135	-.137
Passive - Active	.587	.047	-.228	.025	-.160	.711	-.033	.002
Colorful - Colorless	.511	-.234	.573	-.048	.237	-.178	.030	.193
Meaningless - Meaningful	.476	.185	-.634	-.081	.023	.127	-.067	-.106
Simple - Complex	.556	-.115	-.066	-.208	.089	.528	.453	-.060
Relaxed - Tense	.553	-.505	-.070	-.198	.168	.231	.209	-.359
Unrhythmic - Rhythmic	.419	.459	-.329	-.070	.083	-.024	-.252	.159
Serious - Humorous	.634	.349	.261	.415	-.395	.058	-.246	.228
Slow - Fast	.619	.248	-.027	.091	-.212	.707	-.025	-.050
Large - Small	.515	.104	.372	.599	.024	-.025	.028	.071
White - Black	.622	-.398	.091	-.200	.543	.325	-.079	-.091
Pictorial - Non-pictorial	.639	-.212	.765	.014	-.036	-.040	.019	.072
Unique - Commonplace	.500	-.104	.034	.584	-.102	.090	-.282	.219
Emotional - Rational	.419	-.186	.101	.358	-.010	.081	.126	.472
Ugly - Beautiful	.707	.738	-.177	-.162	-.188	.184	.184	.023
Sincere - Insincere	.499	-.290	.372	.422	.175	.100	.159	-.180
Red - Green	.650	.096	.092	.093	.096	-.133	.067	.769
Unmelodic - Melodic	.555	.622	-.282	.075	.047	.055	.230	-.159
Intimate - Remote	.493	-.646	.075	-.012	.184	.129	.070	.119
Bad - Good	.667	.683	-.257	-.250	-.153	.194	.100	.034
Strong - Weak	.628	-.102	.423	.641	-.068	-.103	.091	.068
Soft - Loud	.566	-.117	.113	-.545	.073	.483	.016	-.063
Dark - Bright	.609	.601	-.074	.254	-.407	-.035	.004	-.101
Panoramic - Non-panoramic	.503	-.205	.593	.201	.067	.037	-.149	.202
Mild - Intense	.678	-.187	-.098	-.540	.184	.541	-.057	-.106
Unimaginative - Imaginative	.610	.226	-.641	-.272	-.004	.189	.195	-.009
	18.737	4.564	3.721	2.825	2.367	2.357	1.475	1.427

fourteen, eleven, nine, seven, seven, five, and four per cent respectively. Thus, Group A's factor structure for the strange excerpts was not dominated by one factor.

This solution for Group A's responses to the strange excerpts was very similar to the solution for their responses to the familiar excerpts. Both were seven factor solutions. Both accounted for almost exactly the same percentage of the total variance: the difference was a matter of one per cent. In both unidentifiable factors emerged. With regard to this last aspect, the factor analytic solution for the strange excerpts was slightly preferable in that only two unidentifiable factors involving fifteen per cent of the common variance emerged. In the solution for the familiar excerpts, the three unidentifiable factors which emerged left twenty-three per cent of the common variance unexplained. Finally, in both solutions, the identifiable factors were of roughly equivalent importance, with the first factor being given slightly more emphasis.

As was the case in the analysis of Group A's responses to the familiar excerpts, the first factor isolated in their responses to the strange excerpts was Evaluation. This Evaluation factor was defined by the scales beautiful - ugly, good - bad, intimate - remote, pleasant - unpleasant, melodic - unmelodic, bright - dark, ordered - chaotic, and relaxed - tense. Of the seven scales which had loaded high on Evaluation in this group's responses to the

familiar excerpts, only one, sincere - insincere, failed to appear as a dimension on the Evaluation factor isolated in their responses to the strange excerpts. Hence, the high correspondence indicated between these first factors when the group's responses to the two types of music were compared was expected. (See Table XXXIII.) Whether listening to the familiar excerpts or the strange excerpts, these unsophisticated listeners associated ugliness, badness, and unpleasantness with a lack of melodiousness, intimacy, and order. For the strange excerpts two other characteristics, darkness and tension, were also seen as contributing to this ugliness, badness, and unpleasantness.

In Group A's responses to the familiar excerpts, Imagery was the third factor isolated. For their responses to the strange excerpts, it was the second factor generated. This evaluation of Imagery's position to Factor II in these listeners' factor structure increased by only two per cent the amount of the common variance attributable to it. Every scale which loaded high on this factor in the analysis now under discussion had also loaded high on the Imagery factor isolated in the previous analysis. The high degree of similarity indicated between these two factors in Table XXXIII was therefore anticipated. Regardless of the music's familiarity or strangeness, the listeners in Group A seemed to feel that Imagery gave the music meaning. When they

TABLE XXXIII
 FACTOR MATCH FOR GROUP A'S FAMILIAR WITH GROUP A'S STRANGE

Factors	Group A - Strange						
	I	II	III	IV	V	VI	VII
I	-.9422	.0978	.2937	.0559	-.0445	.0116	.1056
II	.4078	.0354	.3637	-.7910	.2477	-.0265	.1116
III	-.0174	.9456	.2514	.0810	.0836	-.0124	.1690
IV	-.2144	.0142	-.6700	.0014	.6309	.1757	-.2758
V	.3052	-.6657	.0489	.2779	.5394	-.1979	.2323
VI	.0343	.1290	.1691	.0215	.0038	.8205	.5291
VII	-.0460	-.2596	.4711	.1271	.6191	-.2913	-.4736

were unable to discern this in either type of music, it seems fair to conjecture that these listeners would have described the music as meaningless. If this conjecture is correct, then Group A's listeners can be said to have displayed a heavy reliance upon the programmatic aspect of music.

The following dimensions defined Factor III: strong - weak, large - small, unique - commonplace, loud - soft, and intense - mild. The theme binding these five scales together is Potency. A Potency factor was also isolated in Group A's responses to the familiar excerpts. (See Factor IV, Table XXXI.) In it, as here, the music's dynamic level was an indication of the music's strength. However, rather than associating Potency with complexity as they did for the familiar excerpts, these listeners related it to uniqueness when listening to the strange excerpts. Strange music which was also weak, soft, and mild stood a strong chance of being labelled commonplace by these listeners. As can be seen from Table XXXIII, the degree of correspondence between these two factors was rather low.

Factor IV in Group A's responses to the strange excerpts was defined by the scales happy - sad, yellow - blue, vibrant - still, and white - black. These four scales seem to point to the existence of a Mood - Color - Activity factor. Apparently, the music's activity influenced these listeners decision about the mood portrayed by the music. The less the activity the more

the music was seen as depicting a sad mood. Although the degree of correspondence was less than that found for both Factors I and II, this fourth factor showed some similarity with the second factor isolated in Group A's responses to the familiar excerpts. (See Table XXXIII.)

Factor V in Group A's responses to the strange excerpts was also defined by four scales. They were active - passive, fast - slow, intense - mild, and complex - simple. Activity, Potency, and Complexity, then, were the concerns of this factor. From the linkage pattern for these scales, it seems that in these strange excerpts, complexity was attributed to those which were active, fast, and intense. Passive, slow, and mild music of this type was viewed as simple by these listeners. Somewhat the same mental set was displayed by these listeners when listening to the familiar excerpts. (See Factor IV, Table XXXI.)

Group B's Responses to the Familiar Excerpts. When Group B's responses to the familiar excerpts were factor analyzed, five factors were generated. (See Table XXXIV.) This was the only occurrence of a five-factor solution in any of the analyses for Hypothesis IV: the other five solutions all contained at least six factors. The five factors in this solution together accounted for slightly more than half, fifty-two per cent, of the total variance. Since no scales loaded at or above 0.5 for Factor V,

TABLE XXXIV FACTOR LOADINGS FOR GROUP B ON THE FAMILIAR EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V
Pleasant - Unpleasant	.546	.666	.121	-.237	-.104	-.141
Non-descriptive - Descriptive	.333	-.309	.103	.052	-.329	.340
Vibrant - Still	.559	.020	-.661	-.320	.069	-.123
Repetitive - Varied	.445	.079	-.009	-.078	-.653	-.081
Yellow - Blue	.369	-.042	-.028	-.603	-.017	-.050
Happy - Sad	.589	.119	-.242	-.713	-.081	-.031
Chaotic - Ordered	.452	-.518	-.397	.034	.113	.112
Valuable - Worthless	.571	.588	-.085	-.039	.271	-.378
Passive - Active	.590	-.008	.644	.381	-.154	.082
Colorful - Colorless	.559	.451	-.470	-.206	.129	-.274
Meaningless - Meaningful	.593	-.688	.159	.028	-.148	.269
Simple - Complex	.553	.007	.404	-.129	-.608	-.055
Relaxed - Tense	.609	.411	.610	-.086	-.175	.177
Unrhythmic - Rhythmic	.424	-.498	.037	.306	.286	-.009
Serious - Humorous	.591	.128	.037	.746	.110	.073
Slow - Fast	.648	.203	.508	.574	.062	.129
Large - Small	.508	.086	-.543	.162	.054	.419
White - Black	.653	.240	.285	-.605	.249	.292
Pictorial - Non-pictorial	.415	.436	-.385	-.037	.273	.021
Unique - Commonplace	.385	.156	-.145	-.061	.565	-.130
Emotional - Rational	.378	.552	-.103	.197	.153	-.014
Ugly - Beautiful	.671	-.804	-.107	.047	-.042	-.095
Sincere - Insincere	.495	.564	-.019	.294	.151	.260
Red - Green	.360	.016	-.197	-.374	.114	.409
Unmelodic - Melodic	.493	-.613	.007	-.047	.162	-.298
Intimate - Remote	.550	.702	.226	.061	.009	.050
Bad - Good	.578	-.734	-.031	.177	-.017	.086
Strong - Weak	.582	.427	-.575	.127	.184	.134
Soft - Loud	.614	.273	.724	.076	.076	-.062
Dark - Bright	.559	-.271	.001	.692	-.021	-.080
Panoramic - Non-panoramic	.450	.501	-.265	-.074	.316	.154
Mild - Intense	.509	-.086	.685	.013	-.148	-.102
Unimaginative - Imaginative	.551	-.464	.391	.188	-.318	.217
	17.182	6.087	4.348	3.478	2.012	1.257

its nature was too ambiguous to permit labelling. Hence, only four of the five factors in the solution were named. This inability to name the fifth factor decreased the explainable portion of the total variance to forty-eight per cent. In this respect, the solution for Group B's responses to the familiar excerpts was very similar to the two factor analyses involving Group A's responses.

In this solution, thirty-six per cent, that is, over one-third, of the common variance was attributable to Factor I, while one-quarter of the common variance could be attributed to Factor II. Factor III accounted for twenty per cent or one-fifth of the common variance. Hence, with these first three factors over eighty per cent of the common variance was involved. They, then, were the major factors in Group B's responses to the familiar excerpts.

As was the case in the previous two analyses discussed for Hypothesis IV, the first factor to emerge in this analysis was Evaluation. Examination of the factors' weights in this solution revealed that Evaluation played a fairly dominant role in these listeners responses to the familiar excerpts. Of the three analyses involving familiar excerpts, this was the only solution in which Evaluation was elevated to such an influential position. Neither was this factor's predominance equalled by the Evaluation factors isolated in the three solutions involving strange

excerpts.

Group B's forty-four listeners judged their familiar excerpts on the following dimensions: beauty, goodness, intimacy, meaningfulness, pleasantness, melodiousness, valuableness, sincerity, emotionality, order, panoramic quality, and rhythm. Thus, the scope of the critical judgments levelled by Group B at the excerpts they considered familiar was broad. Highlighted in this list of their critical judgments are certain characteristics which were undoubtedly considered important by these listeners. They are intimacy, melodiousness, sincerity, emotionality, order, panoramic quality, and rhythm. Their presence in the music was accomplished by positive judgments on such scales as good - bad, valuable - worthless, and meaningful - meaningless. Although, as can be seen from Table XXXV, the similarity between this Evaluation factor and that located in Group A's responses to the strange excerpts was fairly high, it was even greater between this Evaluation factor and that located in Group A's responses to the familiar excerpts. (See Table LV, Appdendix F.)

Factor II in Group B's responses to the familiar excerpts was an Activity - Potency one. Eight scales loaded high on this factor: loud - soft, intense - mild, vibrant - still, active - passive, tense - relaxed, strong - weak, large - small, and fast - slow. From this list it is obvious that the music's dynamic level and tempo were important when these subjects considered the

TABLE XXXV

FACTOR MATCH FOR GROUP A'S STRANGE WITH GROUP B'S FAMILIAR

Factors	Group B - Familiar				
	I	II	III	IV	V
I	-.8876	-.4216	.1327	.1099	-.0681
II	.7048	-.5283	-.0139	.3909	-.2667
III	.4602	-.5760	.5329	.2979	.2893
Group A - Strange IV	-.1827	-.3451	-.9048	.1602	.0564
V	.2316	.8552	.4146	.0807	.1915
VI	.1300	-.0225	-.1547	-.9771	-.0629
VII	.2916	-.3340	-.4815	.2973	.6951

presence of movement and strength in these excerpts. Their importance in these areas to these forty-four listeners was already observed in the analysis of their responses to all fourteen musical excerpts, in the analysis of their responses to the eight classical excerpts, and in the analysis of their responses to the six popular excerpts. In the discussion of their responses to the strange excerpts, it was again observed. Hence, that a loud volume is a sign of potency and that a fast tempo is a sign of activity seemed to be two mental sets pervading these listeners' responses to music.

Factor II's likeness to the fifth factor isolated in Group A's responses to the strange excerpts can be seen from Table XL. However, a closer relationship to Factor IV in Group A's responses to the familiar excerpts was exhibited by this second factor. (See Table LV, Appendix F.)

The third factor in Group B's responses to the familiar excerpts was a Mood - Color one in which the music's tempo was of some consequence. A fast tempo was associated with a light, happy mood, whereas a slow tempo was associated with a serious, sad mood. This tendency for tempo to aid in signifying the mood of a composition was earlier discerned in the analysis of this group's responses to all fourteen musical excerpts, and in the analysis of their responses to the popular excerpts. It did not, however, appear in the analysis of their responses to the classical

excerpts. Hence, this association did not pervade their responses to quite the extent the two noted under the discussion for Factor II did.

This Mood - Color factor showed a high degree of correspondence with Factor IV in Group A's responses to the strange excerpts. (See Table XXXV.) Again, however, a higher degree of correspondence was found with a factor located in Group A's responses to the familiar excerpts. This strong resemblance was with Factor II. (See Table LV, Appendix F.)

Only three dimensions, variation, complexity, and uniqueness, came out on the fourth factor in Group B's responses to the familiar excerpts. It then was the most ambiguous of the four factors for which identification was undertaken. A factor loading high on these same three dimensions was isolated only once before in any of the analyses for all four hypotheses. This was Factor IV in the analysis of Group B's responses to all fourteen musical excerpts. (See Factor IV, Table VI.) Although the unifying theme for these three dimensions is not so readily apparent as it was for some of the other factors, it is suggested now, as it was then, that this factor represents a Simple - Complex consideration. Assuming that it does, two observations are applicable. First, these listeners associated repetitiveness in these familiar excerpts with simplicity. Second, these listeners also associated repetitiveness with the state of being commonplace. This fourth factor showed a high

TABLE XXXVI FACTOR LOADINGS FOR GROUP B ON THE STRANGE EXCERPTS

Scales	Communalities	Factors							
		I	II	III	IV	V	VI	VII	VIII
Pleasant - Unpleasant	.645	.386	-.072	-.126	.023	.144	-.088	.667	-.023
Non-descriptive - Descriptive	.628	-.024	-.181	-.045	-.226	.045	-.556	-.477	.056
Vibrant - Still	.613	.022	.510	-.445	.048	-.009	.116	.341	.148
Repetitive - Varied	.610	.043	.088	-.041	-.107	.023	-.747	.110	-.127
Yellow - Blue	.584	.170	-.118	-.137	.037	.630	-.120	.225	.245
Happy - Sad	.718	.354	-.106	-.482	.056	.477	-.100	.330	-.008
Chaotic - Ordered	.564	-.477	.096	-.338	.201	.123	-.027	-.150	.365
Valuable - Worthless	.531	.495	.106	-.065	.367	.090	.010	.356	-.021
Passive - Active	.555	-.070	-.291	.565	-.296	-.120	-.034	-.190	-.085
Colorful - Colorless	.702	.224	.165	-.271	.544	.069	.105	.466	-.147
Meaningless - Meaningful	.629	-.392	-.128	.109	-.611	-.086	-.006	-.183	.180
Simple - Complex	.509	-.131	-.407	.035	-.066	.177	-.320	-.079	-.425
Relaxed - Tense	.607	.248	-.464	.119	-.093	.293	.138	.298	-.336
Unrhythmic - Rhythmic	.693	-.323	-.089	.266	-.195	.034	.078	-.047	.680
Serious - Humorous	.585	-.002	.242	.613	.029	-.149	.102	-.161	.302
Slow - Fast	.684	-.013	-.145	.797	.111	.024	.032	.119	.009
Large - Small	.577	-.152	.656	.058	.006	.063	.279	.131	-.145
White - Black	.542	.209	-.254	-.347	-.060	.472	.212	.119	-.164
Pictorial - Non-pictorial	.506	.499	.222	-.109	.278	-.081	.329	-.068	.001
Unique - Commonplace	.459	.079	.310	.137	.515	-.079	.100	.145	.187
Emotional - Rational	.584	.157	.064	.060	.703	.016	.194	-.131	-.048
Ugly - Beautiful	.708	-.758	.120	.152	-.101	-.235	.047	-.114	.128
Sincere - Insincere	.417	.440	.155	.239	.290	.155	.184	.006	.020
Red - Green	.638	-.009	.301	.059	.088	.708	-.039	-.139	-.120
Unmelodic - Melodic	.605	-.732	.033	.162	-.057	.078	-.015	-.098	.154
Intimate - Remote	.517	.637	-.156	.037	.248	.131	.007	.046	.074
Bad - Good	.653	-.758	-.017	.051	-.068	-.225	.060	-.127	-.012
Strong - Weak	.692	.272	.731	.057	.157	.190	.122	-.053	.038
Soft - Loud	.666	.117	-.791	.086	-.080	.056	.033	.035	.090
Dark - Bright	.633	-.299	.217	.477	.052	-.491	-.012	-.094	.124
Panoramic - Non-panoramic	.561	.505	.233	.095	.122	-.081	.440	.086	-.141
Mild - Intense	.672	-.060	-.731	.017	-.253	.103	.184	.021	-.157
Unimaginative - Imaginative	.602	-.454	-.144	.112	-.405	-.082	-.427	-.060	-.073
	19.890	4.443	3.565	2.622	2.356	2.036	1.810	1.694	1.366

TABLE XXXVI FACTOR LOADINGS FOR GROUP B ON THE STRANGE EXCERPTS

Scales	Communalities	Factors							
		I	II	III	IV	V	VI	VII	VIII
Pleasant - Unpleasant	.645	.386	-.072	-.126	.023	.144	-.088	.667	-.023
Non-descriptive - Descriptive	.628	-.024	-.181	-.045	-.226	.045	-.556	-.477	.056
Vibrant - Still	.613	.022	.510	-.445	.048	-.009	.116	.341	.148
Repetitive - Varied	.610	.043	.088	-.041	-.107	.023	-.747	.110	-.127
Yellow - Blue	.584	.170	-.118	-.137	.037	.630	-.120	.225	.245
Happy - Sad	.718	.354	-.106	-.482	.056	.477	-.100	.330	-.008
Chaotic - Ordered	.564	-.477	.096	-.338	.201	.123	-.027	-.150	.365
Valuable - Worthless	.531	.495	.106	-.065	.367	.090	.010	.356	-.021
Passive - Active	.555	-.070	-.291	.565	-.296	-.120	-.034	-.190	-.085
Colorful - Colorless	.702	.224	.165	-.271	.544	.069	.105	.466	-.147
Meaningless - Meaningful	.629	-.392	-.128	.109	-.611	-.086	-.006	-.183	.180
Simple - Complex	.509	-.131	-.407	.035	-.066	.177	-.320	-.079	-.425
Relaxed - Tense	.607	.248	-.464	.119	-.093	.293	.138	.298	-.336
Unrhythmic - Rhythmic	.693	-.323	-.089	.266	-.195	.034	.078	-.047	.680
Serious - Humorous	.585	-.002	.242	.613	.029	-.149	.102	-.161	.302
Slow - Fast	.684	-.013	-.145	.797	.111	.024	.032	.119	.009
Large - Small	.577	-.152	.656	.058	.006	.063	.279	.131	-.145
White - Black	.542	.209	-.254	-.347	-.060	.472	.212	.119	-.164
Pictorial - Non-pictorial	.506	.499	.222	-.109	.278	-.081	.329	-.068	.001
Unique - Commonplace	.459	.079	.310	.137	.515	-.079	.100	.145	.187
Emotional - Rational	.584	.157	.064	.060	.703	.016	.194	-.131	-.048
Ugly - Beautiful	.708	-.758	.120	.152	-.101	-.235	.047	-.114	.128
Sincere - Insincere	.417	.440	.155	.239	.290	.155	.184	.006	.020
Red - Green	.638	-.009	.301	.059	.088	.708	-.039	-.139	-.120
Unmelodic - Melodic	.605	-.732	.033	.162	-.057	.078	-.015	-.098	.154
Intimate - Remote	.517	.637	-.156	.037	.248	.131	.007	.046	.074
Bad - Good	.653	-.758	-.017	.051	-.068	-.225	.060	-.127	-.012
Strong - Weak	.692	.272	.731	.057	.157	.190	.122	-.053	.038
Soft - Loud	.666	.117	-.791	.086	-.080	.056	.033	.035	.090
Dark - Bright	.633	-.299	.217	.477	.052	-.491	-.012	-.094	.124
Panoramic - Non-panoramic	.561	.505	.233	.095	.122	-.081	.440	.086	-.141
Mild - Intense	.672	-.060	-.731	.017	-.253	.103	.184	.021	-.157
Unimaginative - Imaginative	.602	-.454	-.144	.112	-.405	-.082	-.427	-.060	-.073
	19.890	4.443	3.565	2.622	2.356	2.036	1.810	1.694	1.366

the strange excerpts can generally be said to be less well defined. For example, in both analyses an Evaluation factor was generated. In the analysis for the familiar excerpts, twelve dimensions defined this factor. In the analysis for the strange excerpts, this factor was defined by six dimensions. In the remaining four factors for which labels were supplied in this analysis, the number of defining scales never exceed five even for the second or third factors. Yet the factors isolated were not, with the exception of one, entirely new ones: they had been generated in other factor analyses in this study. Thus, the factor structures of the Group B listeners seemed to indicate that the group's responses to the strange excerpts were less definite than their responses to the familiar excerpts.

Factor I, Evaluation, accounted for twenty-two per cent of the common variance in Group B's responses to the strange excerpts. These excerpts were judged by Group B on the following six dimensions: beauty, melody, intimacy, panoramic quality, pictorial quality, and value. Except for the fourth and fifth dimensions, that is, panoramic quality and pictorial quality, all were dimensions which had frequently loaded high on Evaluation. The scales pictorial - non-pictorial and panoramic - non-panoramic were generally found in a group of scales defining an Imagery factor. Such a factor was not present in this solution. Only in two other analyses thus far discussed did one or both

of these scales come out on Evaluation. They were the analysis of Group B's responses to the familiar excerpts. (See Factor I, Table VI; and Factor I, Table XXXIV.) Thus far in the study, then, evaluating music on these dimensions was a characteristic peculiar to Group B's listeners.

The Evaluation factors isolated in the four analyses which have been discussed for Hypothesis IV were all quite similar. The greatest correspondence was displayed between the Evaluation factors in Group B's responses to the two types of music. (See Table XXXVII.) It was also high between the Evaluation factors located in Group B's responses to the strange excerpts and Group A's responses to the familiar ones. (See Table XXXVIII.) Group B's Evaluation factor in their responses to the strange excerpts least resembled Group A's in their responses to the strange excerpts. (See Table LVIII, Appendix G.)

With the second factor which emerged in Group B's responses to the strange excerpts, eighteen per cent of the common variance was accounted for. Five scales, soft - loud, weak - strong, mild - intense, small - large, and still - vibrant, loaded above 0.5 on this factor. All five had also loaded above 0.5 on the second factor generated when Group B's responses to the familiar excerpts were factor analyzed. These scales mainly center upon the music's potency or strength. With the last scale, however, the idea of activity is introduced. Hence, Factor II was labelled Potency -

TABLE XXXVII

FACTOR MATCH FOR GROUP B'S STANGE WITH GROUP B'S FAMILIAR

Factors	Group B - Familiar				
	I	II	III	IV	V
I	.9896	.0572	.0524	.0213	.1190
II	-.0099	-.9645	.0204	.0620	.2556
III	.2841	.5752	.7533	-.0031	.1445
Group B - Strange IV	.6016	-.2565	.2100	.4375	-.5803
V	.0206	.0696	-.7908	.1182	.5961
VI	.0561	-.1127	-.0469	.9578	.2541
VII	.4713	.1386	-.3408	-.0603	-.7993
VIII	-.5162	-.2991	.2211	.7154	-.2888

TABLE XXXVIII

FACTOR MATCH FOR GROUP B'S STRANGE WITH GROUP A'S FAMILIAR

Factors	Group A - Familiar						
	I	II	III	IV	V	VI	VII
I	.9020	-.1300	.3863	.0225	.0831	-.0978	.0575
II	-.0857	.1506	.2961	-.8659	-.0447	.1341	-.3354
III	.3155	.8641	.0781	.2875	.2324	.1044	-.0114
IV	.2226	.3464	.4748	-.1952	-.4183	.0460	.6244
V	.3112	-.6398	.2158	-.0100	.0968	.3366	-.5696
VI	-.0777	-.0778	.6907	.1037	-.2129	-.6707	.0703
VII	.3284	-.5304	.2555	.4368	-.5820	.0642	.1094
VIII	-.1676	-.0574	-.0262	-.6720	.5134	-.4460	.2321

Activity. As can be seen from Table XXXVII, this factor strongly resembled Factor II in this same group of listeners' responses to the familiar excerpts. Its similarity to Factor IV in Group A's responses to the familiar excerpts, while high, failed to match that shown in the previous example. (See Table XXXVIII.)

Factor III in this analysis was defined by only three scales. Two of these, fast - slow and active - passive, centered upon the idea of activity in the music, while the third, humorous - serious, was a mood scale. Hence, it appears that Group B's listeners related the music's movement, particularly as indicated by tempo, to mood. Fast, active music seemed to be a sign of humor. These listeners displayed the same tendency when listening to the excerpts which were familiar to them. (See Factor III, Table XXXIV.) The likeness between these two factors was not, however, particularly high. (See Table XXXVII.) When listening to the music familiar to them, Group A's listeners also seemed to make this same relationship. (See Factor II, Table XXXI.) Greater similarity existed between these two factors than between those in the previous factor match. (See Table XXXVIII.) Factor II in Group B's responses to the strange excerpts, Activity - Mood, accounted for thirteen per cent of the common variance.

Four scales, the unifying theme for which was not readily apparent to this investigator, loaded high on Factor IV. These four scales were rational - emotional, meaningless - meaningful,

colorless - colorful, and commonplace - unique. Help in labelling this factor was sought by examining those factor matches in which Group B's responses to the strange excerpts were involved. With regard to the analyses already discussed, this step was not particularly rewarding. Factor IV failed to resemble to any extent a factor in Group A's responses to the familiar or the strange excerpts. (See Table XXXVIII and Table LVIII, Appendix G.) Nor was a similar factor present in Group B's responses to the familiar excerpts. (See Table XXXVII.) The comparisons for Group B's responses to the strange excerpts with Group C's responses to the familiar and the strange excerpts proved to be somewhat more helpful. In the former comparison this fourth factor demonstrated some kinship with the sixth factor in Group C's responses. (See Table XXXIX.) This relationship, while greater than any thus far found for this fourth factor, could not be described as strong. A much stronger one existed between this fourth factor and Factor III in Group C's responses to the strange excerpts. (See Table LX, Appendix G.) This third factor was an Imagery one. If the fourth factor generated in the analysis of Group B's responses to the strange excerpts was Imagery, it certainly was not as straightforward as the Imagery factors isolated in prior analyses. None of the scales usually found loading high on Imagery -- panoramic - non-panoramic, descriptive - non-descriptive, pictorial - non-pictorial, or imaginative -

TABLE XXXIX

FACTOR MATCH FOR GROUP B'S STRANGE WITH GROUP C'S FAMILIAR

Factors	Group C - Familiar					
	I	II	III	IV	V	VI
I	.9107	.1550	.0507	.2550	.1759	-.2192
II	.2143	-.8991	-.2829	.2019	.0548	-.1479
III	.2292	.5386	-.7760	.0450	.0718	-.2189
IV	.5147	-.1006	-.2653	.3113	.0898	.7414
V	.0612	-.0726	.9232	.0496	.3424	.1378
VI	.0192	-.0211	.1416	.8440	-.5146	.0439
VII	.5393	.0197	.5457	.1580	-.1309	-.6073
VIII	.1800	-.3013	-.1377	-.0880	-.8394	.3816

unimaginative -- came out on this factor. Factor IV accounted for twelve per cent of the common variance.

Factor V accounted for ten per cent of the common variance. Being defined by the scales red - green, yellow - blue, bright - dark, and white - black, it was a Color factor. Color as a separate factor had been isolated in the previous fourteen analyses only twice. On both occasions, this factor emerged in responses made by the forty-four listeners in Group B. Its first occurrence was in Group B's responses to all fourteen musical excerpts. (See Factor V, Table VI.) Its second occurrence was in Group B's responses to the six popular excerpts. (See Factor IV, Table XVII.) Since such a factor was not isolated in either of the two remaining analyses, it can be said that the factor Color was, in this study, one peculiar to Group B's responses to music. Moreover, it appears that Group B's awareness of color was confined to two types of music, namely popular music, and music they considered strange. Factor V failed to demonstrate a high degree of correspondence with the Mood - Color factor in Group A's responses to the familiar excerpts. (See Table XXXVIII.) It did approximate to some extent the factors involving color in both Group A's responses to the strange excerpts and Group B's responses to the familiar excerpts. (See Table LVIII, Appendix G, and Table XXXVII.)

Group C's Responses to the Familiar Excerpts. Six factors were generated when Group C's responses to the familiar excerpts were factored. (See Table XL.) Like the eight - factor solution for Group B's responses to the strange excerpts, these six factors accounted for sixty per cent of the total variance. Once again undefinable factors decreased the explainable portion of this total variance, in this case to fifty-one per cent. It will be recalled that the unidentifiable factors in Group B's responses to the strange excerpts encompassed fifteen per cent of the sixty per cent. In the analysis presently under discussion, they embraced only nine per cent of the sixty per cent. Hence, the solution for Group C's responses to the familiar excerpts did provide a somewhat fuller explanation of the subjects' responses than did the one for Group B's responses to the strange excerpts. In fact, of the six analyses for Hypothesis IV, this solution provided the fullest account of any of the group's responses to the two types of music. Thus, with regard to the fourth hypothesis, it can be said that the semantic differential test constructed by this investigator proved most effective as a measuring instrument when administered to the musically well-trained subjects using musical excerpts familiar to them. Earlier in this study this test had also proved most effective for this same group of listeners when administered using the classical excerpts.

TABLE XL FACTOR LOADINGS FOR GROUP C ON THE FAMILIAR EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI
Pleasant - Unpleasant	.471	.550	.142	.328	.067	.190	-.004
Non-descriptive - Descriptive	.503	-.154	.070	-.075	-.675	.081	.080
Vibrant - Still	.610	.166	-.703	.241	.101	-.010	.141
Repetitive - Varied	.411	-.161	.126	-.008	-.370	.476	-.079
Yellow - Blue	.494	.021	-.122	.684	.031	.095	-.021
Happy - Sad	.690	-.022	-.046	.810	.133	.102	-.044
Chaotic - Ordered	.661	-.163	-.250	-.077	-.019	-.246	.711
Valuable - Worthless	.611	.740	-.209	-.064	.022	-.121	.026
Passive - Active	.594	-.121	.689	-.303	-.071	-.043	-.079
Colorful - Colorless	.550	.419	-.391	.161	.412	.109	.119
Meaningless - Meaningful	.561	-.669	.170	.033	-.241	-.123	-.102
Simple - Complex	.617	-.238	.525	.183	-.192	.460	-.053
Relaxed - Tense	.623	.061	.694	.268	.029	.248	-.057
Unrhythmic - Rhythmic	.378	-.280	.086	-.253	.000	-.463	.116
Serious - Humorous	.635	.256	.046	-.741	.054	-.117	-.050
Slow - Fast	.630	.124	.565	-.484	.108	.042	-.217
Large - Small	.568	.302	-.487	-.353	.314	-.124	-.026
White - Black	.573	.175	.197	.697	.037	-.117	-.049
Pictorial - Non-pictorial	.685	.196	-.036	.087	.788	.058	.115
Unique - Commonplace	.542	.509	-.267	-.082	.290	-.301	.175
Emotional - Rational	.665	.339	.045	-.169	.358	.152	.607
Ugly - Beautiful	.666	-.772	-.136	-.139	-.176	.022	-.028
Sincere - Insincere	.528	.674	-.034	-.190	.167	.032	-.081
Red - Green	.403	-.065	-.375	.119	.156	.432	.180
Unmelodic - Melodic	.546	-.462	-.087	-.167	-.250	-.435	.212
Intimate - Remote	.622	.508	.324	.076	.134	.354	.331
Bad - Good	.721	-.836	.084	-.049	-.071	.025	.080
Strong - Weak	.697	.576	-.519	-.132	.271	.033	-.061
Soft - Loud	.651	.054	.792	.072	-.010	-.103	.070
Dark - Bright	.636	-.161	-.099	-.740	-.044	-.167	.152
Panoramic - Non-panoramic	.629	.236	-.110	-.017	.743	.006	.094
Mild - Intense	.634	-.262	.624	.326	-.258	-.025	.043
Unimaginative - Imaginative	.602	-.622	.216	-.014	-.401	.085	-.031
	19.406	5.445	4.385	3.815	2.868	1.592	1.301

Ten scales, all of a judgmental nature, loaded high on Factor I. Hence, this factor was for Group C when presented with music they considered familiar, as it had been for the listeners in Groups A and B when they were presented with familiar music, Evaluation. Group C's listeners, like those in Group B, also introduced on this Evaluation factor some dimensions which had not frequently occurred before. They were imaginativeness, weakness, and commonplaceness. Lack of these three characteristics plus a lack of intimacy and sincerity were all deemed undesirable by these listeners.

Five factor matches were done in which this Evaluation factor was compared to factors isolated in other analyses. Of these, the greatest degree of correspondence on this factor was found with Group B's Evaluation factor in their responses to the familiar excerpts. (See Table LVII, Appendix F.) The next highest degree of similarity was found between the first factors in Group C's responses to the familiar excerpts and in Group B's responses to the strange excerpts. (See Table XXXIX.) The correspondence between the Evaluation factors located in Group C's responses to the familiar and the strange excerpts almost equalled that in the previous match. (See Table XLI.) The lowest degree of correspondence was found between the Evaluation factors in Group C's responses to the familiar excerpts and Group A's responses to the strange excerpts. (See Table XLII.)

TABLE XLI

FACTOR MATCH FOR GROUP C'S STRANGE WITH GROUP C'S FAMILIAR

Factors	I	II	Group C - Familiar			V	VI
			III	IV			
I	.9056	.1161	-.0338	.2305	-.1223	-.3116	
II	-.1112	.9055	.3423	-.1826	-.0503	.1211	
III	.2699	.0542	-.1394	.6625	.2599	.6311	
IV	-.1784	-.5998	.7693	-.0826	.0041	.0990	
V	-.0708	-.1893	-.8435	-.0997	-.3823	.3027	
VI	.3724	-.3577	-.1391	.0277	-.7461	.3958	
VII	-.5978	-.0670	-.0647	.0198	-.6729	.4252	

Group C -
Strange

TABLE XLII
 FACTOR MATCH FOR GROUP A'S STRANGE WITH GROUP C'S FAMILIAR

Factors	Group C - Familiar					
	I	II	III	IV	V	VI
I	-.7879	-.4232	-.2762	.0286	-.3184	.1470
II	.4118	-.2174	-.0213	.8837	.0408	.0124
III	.6954	-.4723	-.5079	.0725	-.1658	.0511
IV	-.0256	-.3416	.8992	.0638	-.1203	.2358
V	.0569	.9607	-.2316	.1378	-.0317	-.0106
VI	-.3496	.1109	.0690	-.3628	.8220	-.2311
VII	-.0941	-.2240	.1096	.4296	.6459	.5721

Group A -
 Strange

Activity - Potency, Factor II in Group C's responses to the familiar excerpts, accounted for twenty-three per cent of the common variance. Its weight in this group's factor structure was only five per cent less than that of Factor I, Evaluation. Thus, Evaluation did not play a dominant role in these listeners' responses to the excerpts with which they were familiar. It should be noted that with these first two factors, approximately one-half of the common variance could be explained.

From the dimensions which came out on this Activity - Potency factor, it appears that for the listeners in Group C, the music's dynamic level functioned as a sign of strength and the music's tempo as a sign of activity. Loud music signified strength; fast music signified activity. Both these attributes, that is, loudness and fast tempo, were apparently associated with complexity. These associations were not new: all three had occurred in analyses prior to this one.

Comparison of this Activity - Potency factor with the factors isolated in the other four analyses discussed for Hypothesis IV resulted in finding an example in which Group C's responses to the familiar excerpts most closely resembled Group A's responses to the strange excerpts. (See Table XLII.) This held true even after Group C's responses to the familiar excerpts were compared with their responses to the strange excerpts. (See Table XLI.) Even Group A's responses to the

familiar excerpts provided a closer match than did Group C's responses to the strange excerpts. (See Table LVI, Appendix F.) The correspondence found for this Activity - Potency factor in the analysis of Group A's responses to the familiar excerpts was practically equal to that found in the analysis of Group B's responses to the familiar excerpts. (See Tables LVI and LVII, Appendix F.)

Happy - sad, humorous - serious, bright - dark, and yellow - blue were the four scales which loaded above 0.5 on Factor III in Group C's responses to the familiar excerpts. This factor, then, was Mood - Color. It accounted for twenty per cent of the common variance. Factors involving Mood - Color or Color had been generated in all four of the factor analyses thus far discussed. This Mood - Color factor most resembled that in Group B's responses to the familiar excerpts. (See Table LVII, Appendix F.) This was one of the highest degrees of correspondence found in any of the thirty-four factor matches done in this study. The likeness between this Mood - Color factor and the second factor in Group A's responses to the familiar excerpts was almost as great. (See Table LVI, Appendix F.) Its similarity to Factor IV in Group A's responses to the strange excerpts and Factor V in Group B's responses to the strange excerpts was high in both cases. (See Tables XLII and XXXIX.)

Imagery was the fifth factor isolated in Group C's responses to the familiar excerpts. It was defined by the scales pictorial - non-pictorial, panoramic - non-panoramic, and descriptive - non-descriptive. These three dimensions were the ones which generally defined Imagery factors throughout the study. Examination of the factor matches involving Group C's responses to the familiar excerpts revealed that this Imagery factor was most like Factor III in Group A's responses to the familiar excerpts. (See Table LVI, Appendix F.) It also showed a fairly strong correspondence to the second factor in Group A's responses to the strange excerpts. (See Table XLII.) For Group B's responses to the strange excerpts, it showed its strongest affinity with the unlabelled sixth factor. (See Table XXXIX.)

The first four factors isolated in Group C's responses to the excerpts with which they felt familiar were the major ones in their factor structure. With them it was possible to explain eighty-six per cent of the common variance. The remaining fourteen per cent was divided between Factors V and VI. Both of these factors were too ambiguous to warrant labelling.

Group C's Responses to the Strange Excerpts. Group C's responses to the excerpts which they described as strange generated seven factors. (See Table XLIII.) Of these seven factors, two, Factors V and VII, were unidentifiable. For both of these factors,

TABLE XLIII FACTOR LOADINGS FOR GROUP C ON THE STRANGE EXCERPTS

Scales	Communalities	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII
Pleasant - Unpleasant	.613	.669	.108	.128	.270	-.218	.019	.130
Non-descriptive - Descriptive	.573	-.556	.035	-.280	-.135	-.284	.275	-.098
Vibrant - Still	.531	.297	-.190	.231	.485	.007	.333	.085
Repetitive - Varied	.642	-.124	-.001	.113	.158	.033	-.766	-.004
Yellow - Blue	.570	-.012	.087	.098	.693	-.072	-.152	-.210
Happy - Sad	.709	.153	.206	-.027	.757	-.253	-.034	-.063
Chaotic - Ordered	.596	-.439	-.086	.329	.102	.205	.447	.186
Valuable - Worthless	.544	.657	-.077	.200	.071	-.030	.119	-.216
Passive - Active	.596	-.072	.271	-.304	.588	.193	-.202	.029
Colorful - Colorless	.597	.370	-.084	.400	.442	-.041	.305	-.047
Meaningless - Meaningful	.615	-.479	.084	-.571	-.124	.055	-.165	.087
Simple - Complex	.497	-.180	.381	-.089	-.234	-.000	-.500	-.085
Relaxed - Tense	.408	.033	.462	-.053	-.047	-.378	-.209	-.044
Unrhythmic - Rhythmic	.757	-.175	-.016	-.012	-.195	-.022	.070	.826
Serious - Humorous	.573	.056	-.466	-.129	-.413	.319	.251	.041
Slow - Fast	.546	-.074	.127	.008	-.722	.002	.018	.047
Large - Small	.537	.122	-.694	.021	.020	.172	.061	-.079
White - Black	.627	.202	.394	.066	.305	-.573	.046	.053
Pictorial - Non-pictorial	.606	.222	-.100	.685	.124	-.125	-.163	-.144
Unique - Commonplace	.466	.318	-.227	.234	.017	.303	.407	-.034
Emotional - Rational	.636	.085	-.048	.755	.002	.087	-.006	.220
Ugly - Beautiful	.618	-.598	-.006	-.232	-.113	.363	-.178	.175
Sincere - Insincere	.512	.580	-.206	.270	-.087	.085	.172	-.125
Red - Green	.353	.172	-.344	.259	.045	-.366	-.046	-.012
Unmelodic - Melodic	.574	-.240	-.090	-.347	-.072	.290	.053	.543
Intimate - Remote	.420	.187	.193	.510	.151	.053	.045	-.244
Bad - Good	.658	-.651	.035	-.151	-.176	.277	-.107	.301
Strong - Weak	.675	.386	-.704	.104	-.028	-.067	.089	-.078
Soft - Loud	.614	.173	.751	.065	-.080	.002	-.001	-.096
Dark - Bright	.725	-.128	-.168	.012	-.348	.735	.030	.133
Panoramic - Non-panoramic	.646	.383	-.196	.528	.054	-.301	.186	-.232
Mild - Intense	.733	-.021	.837	-.153	.019	-.056	-.032	-.068
Unimaginative - Imaginative	.525	-.393	.197	-.486	-.061	.111	-.113	.257
	19.290	3.904	3.565	3.175	3.090	2.088	1.870	1.598

there were only two scales loading above 0.5. Since no scales loaded on them in the range 0.4 to 0.5, further clarification of their nature was not available by lowering the loading acceptance level. It was because such clarification was available that Factor VI was identified. The presence of two unidentifiable factors in these listeners' factor structure reduced by eleven per cent the explainable portion of the total variance for which this solution accounted. Thus, only forty-seven per cent of the fifty-eight per cent, the amount of the total variance accounted for by this solution, was explained.

The weights of the five identifiable factors, that is, Factors I, II, III, IV, and VI, in Group C's factor structure for the strange excerpts did not cover a wide range. Factor I accounted for twenty per cent of the common variance, Factor II eighteen per cent, Factor III seventeen per cent, Factor IV sixteen per cent, and Factor VI ten per cent. Hence, the difference between the weights of the first and sixth factors was a matter of ten per cent. Thus, all five factors were of approximately equivalent importance, with the most emphasis being given to Factor I. In all but the third analysis for Hypothesis IV, this tendency for the weights of the identifiable factors to group themselves in a small range was noted. Only in Group B's responses to the familiar excerpts was a break with this trend observed.

Factor I, Evaluation, was defined by the scales unpleasant - pleasant, worthless - valuable, bad - good, ugly - beautiful, insincere - sincere, and non-descriptive - descriptive. This was the only Evaluation factor in the entire study on which the descriptive dimension loaded high. When it came out in the other analyses, this dimension was generally found among a cluster of scales defining an Imagery factor. Earlier in this study, three instances in which two other scales also generally among those defining an Imagery factor were noted. The scales were pictorial - non-pictorial and panoramic - non-panoramic. In all three of these earlier cases, Group B's responses were involved. Group C's listeners judged the music on its descriptive power only when presented with music with which they were unfamiliar.

A second notable feature of this Evaluation factor is the absence of the scale melodic - unmelodic. The melodic dimension came out on every Evaluation factor isolated in the analyses for Hypothesis IV except the two involving Group C's responses. This dimension occurred nowhere in the factor structure for Group C's responses to the familiar excerpts. In their responses to the strange excerpts it came out with the rhythm dimension on Factor VII, a factor insufficiently defined to permit labelling.

A total of seventeen factor analyses were done in this study. In all seventeen of the solutions produced by using this

statistical technique, the factor Evaluation was isolated. The two Evaluation factors just mentioned were the only ones on which the scale melodic - unmelodic failed to load above 0.5. That it did not implies a lack of concern on the part of these listeners about this musical element when they were evaluating the familiar and strange excerpts. Since such an element would be most obvious to a musician, why these well-trained listeners were so unconcerned about it is rather puzzling. Perhaps in the familiar excerpts it was so obvious to them that they did not bother considering it. For the strange excerpts, this element was not entirely neglected: it did emerge on the last factor to be generated.

Five factor matches in which a comparison involving Group C's responses to the strange excerpts were done. Of these, this Evaluation factor demonstrated the most affinity with the Evaluation factor located in the same group of listeners responses to the familiar excerpts. (See Table XLI.) That found in Table XLIV, a comparison of Group C's Strange and Group B's Familiar, was not far below the degree of correspondence found in the previous illustration. In the other three factor matches, the degree of correspondence between the Evaluation factors was not particularly high. (See Tables XLV; Table LIX, Appendix G; Table LX, Appendix G.)

TABLE XLIV

FACTOR MATCH FOR GROUP C'S STRANGE WITH GROUP B'S FAMILIAR

Factors	Group B - Familiar				
	I	II	III	IV	V
I	.8978	.2387	.0681	.2079	-.2986
II	.1364	.9519	-.0439	-.0678	-.2622
III	.8017	-.4194	.2160	.3618	.0618
Group C - Strange - IV	-.2659	-.5371	-.7647	-.0705	-.2262
V	-.2932	-.0729	.6310	-.0125	-.7145
VI	-.2617	-.2056	.1930	.9171	.1048
VII	-.7868	-.0707	.0511	.5198	-.3211

TABLE XLV

FACTOR MATCH FOR GROUP A'S FAMILIAR WITH GROUP C'S STRANGE

Factors	Group C - Strange						
	I	II	III	IV	V	VI	VII
I	.7706	-.0813	.1061	-.0338	-.4025	.1358	-.4548
II	-.0341	-.3257	-.0470	-.8242	.4548	.0209	.0257
III	.5314	-.3346	.7704	.0657	-.0845	-.0221	.0093
Group A - Familiar	-.0619	.8547	-.1586	-.2559	-.1712	-.3793	-.0440
V	-.3943	-.0240	-.3408	-.5016	-.3718	.1266	.5674
VI	-.1544	-.2705	.3238	.1075	.0959	-.8811	-.0312
VII	-.2209	.3264	.4946	.0244	.7263	.1758	.2025

The second factor isolated in Group C's responses to the strange excerpts was Potency. For these listeners, the music's dynamic level was an important indicator of the music's strength. This tendency to see loud music as signifying strength and soft music a lack of strength was observed in every analysis for Hypothesis IV. Whether listening to the strange or familiar excerpts, it was a mental set held by all three groups of listeners.

This Potency factor demonstrated its highest degree of correspondence with the second factor in Group B's responses to the strange excerpts. (See Table LX, Appendix G.) It also showed a high degree of correspondence with the second factor in Group B's responses to the familiar excerpts. (See Table XLIV.) Its similitude with the Activity - Potency factor located in Group C's responses to the familiar excerpts was also high. (See Table XLI.) The lowest degree of correspondence for this second factor was found in the matches involving Group A's responses to the familiar and the strange excerpts. In both cases, it, too, was fairly high. (See Table XLV; Table LIX, Appendix G.) Thus, Potency, the second factor in Group C's responses to the strange excerpts, approximated to a rather high degree a factor located in all five of the other analyses done for Hypothesis IV.

Imagery was the third factor generated when Group C's

responses to the strange excerpts were factored. In addition to the pictorial, panoramic, and imaginative dimensions, two others came out on this factor. They were the emotion and meaning dimensions. The linkage pattern for these dimensions was rational, non-pictorial, meaningless, non-panoramic, and unimaginative. Hence, for the strange excerpts, Group C's listeners associated a lack of imagery with both a lack of emotion and a lack of meaning.

In only one of the five factor matches involving this particular analysis did this Imagery factor display a fairly high degree of similarity with a factor located in some other group's responses. This was the factor match in which Group B's responses to the strange excerpts were compared with Group C's responses to the strange excerpts. (See Table LX, Appendix G.) Of the three factor matches involving a comparison between Group C's responses to the strange excerpts and a group's responses to the familiar excerpts, the greatest degree of similarity found was with the first factor, Evaluation, in Group B's responses to the familiar excerpts. (See Tables XLI, XLIV, and XL.) In other words, some of the dimensions on which Group B's listeners judged the music with which they were familiar were very similar to those used by Group C when considering the imagery present in the excerpts with which they were unfamiliar.

Factor IV was a Mood - Color - Activity one. The lack

of movement in the music was seen as portraying a sad mood. Group B's listeners evinced a similar response when listening to the strange excerpts. (See Factor III, Table XXXVI.) In the factor match between these two analyses the greatest degree of correspondence for this fourth factor was found. (See Table LX, Appendix G.) Only one other factor match, that between the strange excerpts for Groups A and C, disclosed another factor which Group C's fourth closely resembled. (See Table LIX, Appendix G.)

The last factor capable of being identified in Group C's responses to the strange excerpts was Factor VI. On it the dimensions variation, complexity, chaos, and uniqueness loaded. These listeners, then, were concerned about the Simplicity or Complexity of the strange excerpts. Repetition and order were seen as contributing to its simplicity, and variation and lack of order to its complexity. The music's uniqueness was apparently to some extent a function of its complexity and therefore its variation and lack of order. An almost identical factor was isolated in Group B's responses to the familiar excerpts. (See Factor IV, Table XXXIV.) On that fourth factor only the order dimension failed to appear. As can be seen from Table XLIV the resemblance between these two factors was strong.

Conclusions

The main purpose of this fourth section of Chapter IV was to determine if individuals with a given musical background listened to familiar music differently than they listened to strange music. Due to the results obtained when Hypothesis III was tested, two additional investigations not directly concerned with testing Hypothesis IV were undertaken. These two investigations involved comparing the three groups of listeners' responses to familiar excerpts and comparing the three groups of listeners' responses to strange excerpts. With them, a second look at familiarity's influence upon the responses of the listeners was possible. The findings for these two additional investigations have been summarized first. Following this, the findings which resulted when Hypothesis IV was tested are discussed.

The three factor matches involving only responses made to familiar musical excerpts revealed that there was a high degree of correspondence between the factors isolated in each group. On the whole, the three groups of listeners tended to use rather comparable approaches when asked to listen to music with which they were already familiar. The striking resemblance between Group A and Group C's responses is noteworthy. For every identifiable factor in Group A's responses there was a corresponding identifiable factor located in Group C's responses.

This was the only factor match in this trio for which this situation accrued. Thus, it must be acknowledged that, despite the over-all similarity in the three groups, the factor matches involving each group's responses to familiar excerpts illuminated a trend similar to that found when the three group's responses to the classical excerpts were compared. This trend was that the responses of the groups most dissimilar with regard to musical background approximated each other most closely.

The picture depicted by the three factor matches involving only responses to strange musical excerpts was rather different from that for familiar excerpts. The first main difference was that the degree of correspondence between factors isolated in the groups tended to be lower than those between factors isolated for the familiar excerpts. Second, the number of factors matching up with an identifiable factor in another group was lower than in the previous factor matches. Third, the Evaluation factors for the first time showed a low degree of correspondence. Fourth, although the least amount of similarity seemed to be between Groups A and B's responses, that between Groups A and C's responses could not be described as much greater. Fifth, Groups B and C's responses seemed to display the most comparability. Finally, the factor structure of each group of listeners for the music with which they would not say they were already familiar seemed to indicate the presence of uncertainty. The factors isolated were generally not as clearly defined as those for the familiar excerpts. Due to

these differences, it can be said that when the listeners in each group were presented with music with which they felt unfamiliar their responses tended to diverge rather than converge. Hence, when listening to this type of music, the three listening groups did not appear to use fairly comparable approaches.

The factor analyses and factor matches done to test Hypothesis IV revealed there were both similarities and differences in the factor structures of the three listening groups for the two types of music. These have been summarized in the following paragraphs. To facilitate this process, Table XLVI was constructed. Given in this table is the weight of each factor in each factor structure. These weights are percentages based upon the common variance. Superscripts have been used to identify factors bearing the same name. The analyses are identified by the following small Roman numerals:

- i Group A's responses to familiar excerpts
- ii Group A's responses to strange excerpts
- iii Group B's responses to familiar excerpts
- iv Group B's responses to strange excerpts
- v Group C's responses to familiar excerpts
- vi Group C's responses to strange excerpts

It was hoped that this table would help to provide a more concrete picture of the factor patterns in the six analyses.

The percentage of the total variance accounted for by the solutions in these six analyses ranged from fifty-two per cent in Analysis iii to sixty per cent in Analyses iv and v.

TABLE XLVI

THE FACTORS ISOLATED IN EACH FACTOR ANALYSIS
FOR HYPOTHESIS IV

Factors	Analyses					
	i	ii	iii	iv	v	vi
I	23 [*]	24 [*]	36 [*]	22 [*]	28 [*]	20 [*]
II	19 ^x	20 ⁺	25 ^{yz}	18 ^{yz}	23 ^{yz}	18 ^y
III	18 ⁺	15 ^y	20 ^x	13 ^{zb}	20 ^x	17 ⁺
IV	17 ^y	13 ^{xz}	12 ^w	12 ^c	15 ⁺	16 ^{xz}
V	9 ^c	13 ^{yz}	7 ^{**}	10 ^a	8 ^{**}	11 ^{**}
VI	7 ^{**}	8 ^{**}		9 ^{**}	7 ^{**}	10 ^w
VII	7 ^{**}	7 ^{**}		9 ^{**}		8 ^{**}
VIII				7 ^{**}		

* Used to indicate the factor Evaluation

** Used to indicate factors which could not be labelled

⁺ Used to indicate the factor Imagery

^w Used to indicate the factor Simple - Complex

^x Used to indicate the factor Mood - Color, or this component in a factor

^y Used to indicate the factor Potency, or this component in a factor

^z Used to indicate the Activity component in a factor

^a Used to indicate the factor Color

^b Used to indicate the Mood component in a factor

^c Used to indicate a factor which could not be labelled due to the investigator's inability to discern a unifying theme for the scales involved

However, due to the emergence of unidentifiable factors, the portion of the total variance which was explained was invariably less. In five of the six analyses the explainable percentage of the total variance fell within the range forty-seven per cent to fifty-one per cent inclusive. Hence, five of the solutions provided an explanation for practically the same amount of the variance. The one exception was Analysis iv, that is, the analysis of Group B's responses to the strange excerpts. In that solution only thirty-eight per cent of the variance could be explained.

In every factor analysis for Hypothesis IV, the first factor to be isolated was Evaluation. In all but two comparisons the degree of correspondence between the Evaluation factors was high. The two exceptions were the comparisons between Group A's familiar and Group C's strange, and Group C's familiar and Group A's strange. The greatest degree of correspondence occurred between Group B's familiar and Group B's strange.

Only in Analysis iii did the factor Evaluation play a dominant role. In the other five analyses the weights of the factors tended to be approximately equivalent, with Evaluation receiving the most emphasis. Moreover, the weights of the Evaluation factors in these five analyses did not display considerable variation. Instead, their weights were confined to a rather narrow range. In this respect, the Evaluation

factors located in Hypothesis II's six analyses present quite a contrast to those in these five analyses for Hypothesis IV.

Imagery was isolated as a factor in all the analyses except the two involving Group B's responses, that is Analyses iii and iv. The greatest factorial similarity for Imagery was found in Group A's responses to the two types of music. That between Group A's familiar and Group C's strange, and that between Group C's familiar and Group C's strange was not high. The correspondence between Group C's familiar and Group A's strange was, however, quite high.

In Analyses i, ii, iv, and vi Potency was located as a separate factor, while in Analyses ii, iii, and iv it was found in conjunction with Activity. The loudness dimension came out on all seven of these factors. It signified strength. Thus, neither the musical background of the listeners nor the type of music to which they were asked to listen had any influence on this association. It was one held by the listeners generally. The greatest degree of correspondence was displayed between the Activity - Potency factor in Group B's familiar and the Potency factor in Group B's strange. That between the Activity - Potency factor in Group B's familiar and the Potency factor in Group C's strange almost equalled the similarity displayed in the previous illustration. Only in Analysis ii was both a Potency factor and an Activity - Potency factor isolated.

In addition to appearing in conjunction with Potency, Activity also combined with Mood - Color twice and with Mood once. A Mood - Color - Activity factor occurred in Analyses ii and vi; a Mood - Activity factor occurred in Analysis iv. In all three of these factors, the music's movement served as an indicator of the mood portrayed by the music. Tempo appeared to be a paramount consideration here. Fast music signified the lighter moods, and slow music the heavier moods.

Although Mood came out in all six analyses, it was not isolated as a separate factor. It combined with Color (Analyses i, iii, v), with Color and Activity (Analyses ii and vi), and with Activity (Analysis iv). The highest degree of similarity occurred between Mood - Color in Group B's familiar and Mood - Color - Activity in Group A's strange.

In Analyses iii and vi a factor designated as Simple - Complex was isolated. In both these factors repetition implied simplicity and commonplaceness whereas variation implied complexity and uniqueness. The degree of correspondence between these two factors was high.

Examination of the relationships brought out by the factor matches for Hypothesis IV's six factor analytic solutions indicated the following conclusions:

1. Group A's responses to familiar excerpts were most similar to those made by Group B to the strange

excerpts. Considering the specific factor's weights, it is probably fair to say that the correspondence between Group A's responses to the familiar and strange excerpts was greater than that between Group A's responses to the familiar and Group C's responses to the strange.

2. Group B's responses to the familiar excerpts were very similar to their responses to the strange excerpts. The resemblance between Group B's responses to the familiar and Group C's responses to the strange excerpts was also strong.
3. Group C's responses to the familiar excerpts were most similar to Group B's responses to the strange excerpts.

Thus, the responses of two of the three listening groups seemed to vary according to the degree of familiarity the listeners felt with the music. Involved in these two groups were the listeners in the study having the most musical background and the least musical background. The listeners between these two extremes displayed a tendency to respond to both familiar and strange music in much the same way. Familiarity therefore seemed to have much less impact upon the Group B listeners than upon the listeners in either Groups A or C.

These results indicate there was a relationship between

the subjects' musical backgrounds and their semantic factor responses to familiar and strange excerpts. The null hypothesis was therefore rejected.

RELIABILITY OF THE SEMANTIC DIFFERENTIAL

The data for calculating the reliability of the semantic differential was obtained by administering exactly the same test twice. An interval of approximately one month separated the two administrations of the test. Hence, the experimental procedure of test - retest was used to estimate the test's reliability.

According to Thorndike and Hagen, there are three main sources of variation in performance which tend to reduce the precision of a particular score as a description of an individual.⁶ These are listed below:

1. Variation in response to the test at a particular moment in time.
2. Variation in the individual from time to time.
3. Variation arising out of the particular sample of tasks chosen to represent an area of behavior.

⁶Robert L. Thorndike and Elizabeth Hagen, Measurement and Evaluation in Psychology and Education (second edition; New York: John Wiley and Sons, Inc., 1965), p. 177.

Retesting with the same test reflected the first two of these three sources of error. It did not, however, evaluate the effects of the third source of error.

Seventy of the one hundred and thirty-six subjects who participated in the first administration of the test volunteered to retake the test. Of these seventy subjects, nineteen were in Group A, twenty-six were in Group B, and twenty-five were in Group C. Thus, the three categories of musical background established in this study were all represented at the retest sessions.

The computer program used in this phase of the study was written by a member of the Division of Educational Research. It was based upon Ferguson's discussion of Pearson Product Moment Correlation, the formula for which is⁷

$$r = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

As already noted, seventy subjects participated in both administrations of the test. For purposes of programming, these seventy subjects were designated as seventy items. While listening to

⁷George A. Ferguson, Statistical Analysis in Psychology and Education (second edition; New York: McGraw-Hill, 1966), p. 110.

each of the fourteen musical excerpts, a subject described his responses on a semantic differential test consisting of thirty-three scales. For purposes of programming, each item consisted of four hundred and sixty-two variables.

The coefficient of correlation for the seventy items each consisting of four hundred and sixty-two variables was .6126. Due to later statistical work, this figure, for purposes of reference, was labelled r_{13} . It was rounded off to .613.

Had each subject responded in exactly the same way to each excerpt at the test and retest sessions, perfect positive correlation would have been obtained. That $r < + 1.00$ indicates that there were differences in the subjects' responses for the two administrations of the test. From the correlation coefficient .613 one can only conjecture about the extent of the changes indicated by this reliability estimate. In an effort to find out more about these changes, the following experiment was carried out.

A sample of five tests from the first administration were selected. These five tests had been done by five different subjects for five different excerpts. Each answer sheet from the first test session was paired with the corresponding answer sheet from the second administration of the test. The coefficient of correlation for this sample of five was then calculated. A reliability of .696 resulted. For purposes of reference this

reliability was designated as r_{12} .

A given subject's responses for each scale on the test and retest were then compared. Each response made by a subject on the retest was adjusted in such a manner that it was either one scale step above or below the corresponding answer which had been marked at the first administration of the test. In other words, if a subject had blackened in space three for an excerpt at the first test session, his answer for the retest was changed to either two or four. Answers of five or one could, of course, only be changed to four or two respectively. The directions of the changes were noted in order to maintain a balance among the number of positive and negative adjustments. A correlation coefficient for this data was then calculated. The reliability obtained for this sample of five in which the answers for the retest had been adjusted in the manner described above was .657. For purposes of reference this reliability was designated as r_{14} .

To summarize, three reliability estimates were obtained. These are listed below.

1. $r_{12} = .696$ (obtained from the sample of five cases)
2. $r_{13} = .613$ (obtained from the sample of seventy cases)
3. $r_{14} = .657$ (obtained from the sample of five cases,
the scores on the retests having been
increased or decreased one scale point)

A test of the significance of the difference between the two correlation coefficients most dissimilar, that is, r_{12} and r_{13} was then done. In doing this, the following formula was utilized:⁸

$$t = \frac{z_{12} - z_{13}}{\sqrt{\frac{1}{N_{12} - 3} + \frac{1}{N_{13} - 3}}}$$

In this formula

$$z_{12} = \frac{1}{2} \log_e \frac{1 + r_{12}}{1 - r_{12}} = .8595$$

$$z_{13} = \frac{1}{2} \log_e \frac{1 + r_{13}}{1 - r_{13}} = .7121$$

N_{12} = number of pairs of cases in the array from which r_{12} was calculated = 165

N_{13} = number of pairs of cases in the array from which r_{13} was calculated = 32,340

Substituting these values in the formula led to the following:

$$\frac{.8595 - .7121}{\sqrt{\frac{1}{165 - 3} + \frac{1}{32,340 - 3}}} = 1.89$$

This figure was not significant (0.05 or 0.01). In other words, the correlation obtained for the seventy cases ($r_{13} = .613$)

⁸ Charles C. Peters, and Walter R. Van Voorhis, Statistical Procedures and their Mathematical Bases (New York: McGraw-Hill Book Company, Inc., 1940), p. 188.

was not significantly different from the correlation obtained for the sample of five cases ($r_{12} = .696$). Of the three correlations obtained, the two on which the test of significance was done were most different. Hence, it follows that the correlation obtained for the seventy cases ($r_{13} = .613$) would not be significantly different from the correlation obtained by increasing or decreasing the retest scores by one scale point.

The reliability coefficient .613 was a coefficient of stability in that it measured error variance due to temporal variations. This figure indicated that the subjects' responses tended to be fairly stable. For those scales on which a change occurred, the move was most likely of the one point type. Had the move been greater, a significant difference would have been found between r_{12} and r_{13} .

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

SUMMARY

In this study, the investigator attempted to develop a semantic differential test, the purpose of which was to determine the dimensionality of the responses made by individuals as they listened to music. More specifically, the test's purpose was to detect patterns of responses made by a group of listeners, the members of which had musical backgrounds ranging from one of little or no formal training to one of extensive musical study, to selected excerpts of different kinds of music.

Three categories of musical background were established.

They were as follows:

1. Group A - those listeners having little or no musical background. All had received less than one year of formal musical instruction. Forty-four subjects were placed in this category.
2. Group B - those listeners who had received from one to six years inclusive of formal practical instruction. Rudiments, the only theoretical subject in which any of these listeners had received formal instruction, had

been studied by only a few. Forty-four subjects were placed in this category.

3. Group C - those listeners having extensive musical backgrounds. All the subjects in this group had engaged in formal practical study for at least seven years, and formal theoretical study long enough to at least complete the study of rudiments. Forty-eight subjects were placed in this category.

The information necessary to place each subject in one of these three categories was obtained by administering a Musical Background Questionnaire. This instrument was constructed by the investigator.

The music presented to the one hundred and thirty-five University students and one University professor who participated in this study was all selected from the orchestral repertoire. It could be classified in two ways. One classification, namely the music's classical or popular nature, was solely dependent upon the music chosen by the investigator. Included in the fourteen selections to which the one hundred and thirty-six subjects listened were eight classical and six popular excerpts. With regard to the eight excerpts taken from the classical compositions, all had been composed during that period of musical history extending from 1750 to 1900. Since each excerpt was heard only once during the test, the second classification, namely the music's

familiarity or strangeness, was dependent not only upon the music selected by the investigator, but also upon the subjects' previous contact with music and with the excerpts on the test. The subjects' judgments regarding this were obtained from the first scale, familiar - strange, on the semantic differential.

Since the semantic differential is a measurement technique which has been utilized only modestly in the field of aesthetics, validity and reliability were paramount considerations in this study. Validity was defined as the extent to which the test did the job for which it was intended. The test's validity was therefore a function of its sensitivity in detecting factor patterns for the types of listeners, the types of music, and the combination of type of listener with a particular type of music. Four hypotheses involving these two variables, the listeners and the musical excerpts, were tested.

Reliability was defined as the consistency with which the test measured whatever it measured. Of the three approaches available for collecting the data necessary to calculate an estimate of reliability, the test - retest method with a time interval between sessions was chosen. Consequently, the reliability coefficient obtained in this study was a coefficient of stability. It measured error variance due to temporal variations only. That variation arising from the particular sample of tasks chosen to represent the area of behavior, namely

listening to four types of music, was not estimated in this study.

CONCLUSIONS

In this section of Chapter V, a summary of the main findings of this investigation is presented. These have been discussed under the three headings Hypotheses, Preconceptions of the Listeners, and the Semantic Differential Test. Under the heading, Hypotheses, the findings which resulted from testing the four hypotheses put forth at the outset of this study are stated. Implications of these findings have also been noted. Under the second heading, Preconceptions of the Listeners, is a discussion of the factors which emerged in the analyses. In this discussion, preconceptions apparently held by some or all of the listeners are pointed out. This section was included in the belief that the information it provides about listeners could be useful to teachers of listening. The subject of discussion under the third head, the Semantic Differential Test, is the measurement instrument itself. Suggestions for refining the test constructed by the investigator are made.

Hypotheses

Hypotheses I. The postulation that there was no relationship between an individual's musical background and his semantic factor responses to selected excerpts of music could neither be accepted or rejected. At best, all that could be said was that

there appeared to be a relationship between the responses elicited by the musical excerpts and the listeners' musical backgrounds.

There were two reasons for this hesitancy to accept or reject Hypothesis I. First, both similarities and differences were found in the factor structures of the three groups of listeners. Second, the factor structure of Group A, the listeners having the least training in and experience with music, and the factor structure of Group C, the listeners having the most training in and experience with music, showed a striking degree of agreement. Group B's factor structure stood out as being different.

The results noted in the second reason above were unexpected. A possible explanation of these results may be provided by Alfred Whitehead's principle, the Rhythm of Education. In his book The Aims of Education, Whitehead contended that "different subjects and modes of study should be undertaken by pupils at fitting times when they have reached the proper stage of mental development."¹ According to Whitehead, there were three stages of mental growth: the Stage of Romanticism, the Stage of Precision, and the Stage of Generalization.²

¹ Alfred North Whitehead, The Aims of Education (New York: New American Library of World Literature, Inc., 1949), p. 27.

² Ibid, pp. 28 - 31.

Whitehead saw the third stage in the cycle, that is, the Stage of Generalization, as

. . . a return to romanticism with the added advantage of classified ideas and relevant technique. It is the fruition which has been the goal of the precise training. It is the final success.³

Perhaps these phenomena of Group B's responses moving away from those of Group A, and Group C's responses reverting back to those of Group A are examples of Whitehead's cyclic process. It is unfortunate that the study's design offered no way of finding out if Group C's listeners possessed understandings lacked by Group A's listeners.

With regard to Group B's divergent responses, it is suggested that, through their limited experience with music, these listeners may have developed some very definite ideas about how a musically well-trained person listens to music. As they listened in what was perhaps construed by them to be a test situation, Group B's listeners may have attempted to achieve these ideals.

In the Review of Literature, the wide acceptance of the idea that formal musical training influences the way in which individuals listen was noted. At that time it was observed that this supposition has been made despite a paucity of

³Ibid, p. 30.

research studies demonstrating this. In view of the results which accrued when Hypothesis I was tested, one wonders if music educators have perhaps been too willing to accept this idea that formal musical training strongly influences the way in which music is apprehended. More research in this area is needed.

Hypothesis II. The postulation that there was not relationship between an individual's musical background and his semantic factor responses to selected excerpts of classical and popular music was not supported. Such a relationship was found. It is described below in point form.

1. Group C, the listeners with the most extensive musical background, approached these two types of music in basically the same way. When their responses to the classical excerpts were compared with Group A's and Group B's responses to the popular excerpts only a slight resemblance was found.
2. Group B, the listeners with the moderate musical background, also seemed to approach both the classical and the popular excerpts in much the same way. When Group B's responses to the classical excerpts and Group A's responses to the popular excerpts were compared, a low degree of correspondence was found. A greater degree of correspondence than that in the previous example was found between Group B's responses to the classical

excerpts and Group C's responses to the popular excerpts.

This did not match the correspondence found between

Group B's responses to the two types of music.

3. Group A, the listeners with little or no musical background, was the only group which showed a tendency to vary their listening approach according to the music's classical or popular nature. The first factor to emerge in their responses to the classical excerpts was Evaluation, while the first factor to emerge in their responses to the popular excerpts was Mood - Color - Activity. Imagery emerged as a factor in their responses to both the classical excerpts and the popular excerpts; however, its weight was greater in the group's factor structure for the classical excerpts. Both Mood - Color and Potency emerged in two factors in the group's responses to the classical excerpts but only once in their responses to the popular excerpts. Group A's responses to the classical excerpts were very similar to Group B's responses to the popular excerpts. The factor structure for Group A's responses to the popular excerpts failed to match to a high degree with any of the three factor structures for the classical excerpts.

Due to the unexpected results obtained from the analyses for Hypothesis I, two investigations not directly concerned with testing

Hypothesis II were made. They involved comparing the responses of the three groups of listeners to the classical excerpts, and comparing the responses of the three groups of listeners to the popular excerpts. The findings for these two examinations supported the results obtained when Hypothesis I was tested. That is, the responses of the groups most dissimilar with regard to musical background, Groups A and C, approximated each other most closely.

While applicable to both types of music, this generalization was particularly true for the responses made to the popular excerpts. For these, the strongest resemblance occurred between Groups A and C's responses. The results for the classical excerpts brought out some slight changes in the lines of relationship. For example, the approximation between Groups A and B's responses was much greater, though it still did not equal that between Groups A & C's responses. The correspondence between Groups B and C's responses to the classical excerpts was low. Hence, although this exploratory investigation changed to some degree the picture obtained from Hypothesis I's results, the same basic conclusion still stands.

Hypothesis III. The postulation that there was no relationship between an individual's degree of familiarity with musical selections and his semantic factor responses to them was supported. The subjects' factor structures for the Familiar Excerpts

and the Strange Excerpts were very similar.

In the Review of Literature it was noted that repeated presentations of musical selection in listening classes had been condoned by music educators teaching at all levels and by students. According to some, these repeated hearings were necessary if the listener was to deal with the music satisfactorily. From their arguments, one would expect differences in the way in which listeners respond to familiar and to unfamiliar music. Factoring the responses of the one hundred and thirty-six listeners who participated in this study did not bring fulfillment of this expectation. One interpretation of this finding is that perhaps this teaching procedure which has been so strongly recommended by music educators is not as functional as we have been led to believe. However, due to the method used in this study to determine the excerpts' familiarity, caution with such an interpretation is urged. The meaning of the term familiarity for the subjects in this study and for the music educators referred to in Chapter II may not be synonymous. Familiarity for these educators involved more than the ability to correctly name a selection or to recognize having previously heard a selection. For the subjects in this study, this may in many cases have been the interpretation given to the scale familiar - strange.

Hypothesis IV. The postulation that there was no relationship between an individual's musical background and his semantic

factor responses to excerpts of familiar and of strange music was not supported. Such a relationship was found. It is described below in point form.

1. Group A tended to respond to the excerpts with which they were familiar in much the same way as Group B responded to those excerpts with which they were unfamiliar.
2. Group B's responses to the excerpts with which they were familiar approximated rather closely both their responses to the excerpts with which they were unfamiliar and Group C's responses to the excerpts with which they unfamiliar.
3. Group C's responses to the excerpts with which they were familiar strongly resembled Group B's responses to the excerpts with which they were unfamiliar.

Thus, the responses of two of the three listening groups varied according to the degree of familiarity attributed to the music. Involved in these two groups were the listeners having the extensive musical backgrounds and the listeners having very minimal musical backgrounds. Only the listeners falling between these two extremes, Group B, displayed a tendency to respond to all the excerpts regardless of their familiarity or strangeness in much the same way. The familiarity variable apparently had much less impact upon the listeners in Group B than the listeners

in either Groups A or C.

Two additional investigations were carried out with the results obtained from the factor analyses for Hypothesis IV. These two investigations involved comparing the three groups' factor structures for familiar excerpts, and comparing the three groups' factor structures for strange excerpts. It was found that, on the whole, the three groups of listeners tended to use fairly comparable approaches when listening to music with which they were already familiar. Of the three factor structures for familiar excerpts, those for Groups A and C were the most similar. It was also found that, when each group listened to music which for them was strange, the responses made by the three groups tended to diverge. As a result, the degree of correspondence between factors isolated in the three groups' responses to the strange excerpts was generally lower than that between factors isolated in the familiar excerpts. The most correspondence was found between the responses of Groups B and C rather than Groups A and C.

Preconceptions of the Listeners

Comparison of the factors isolated in the analyses done in this study revealed that certain factors appeared in all or almost all of the listeners' factor structures while others occurred infrequently. In other words, certain responses to the music were more widespread than others. Both types of

factors provide insight into how individuals with varying musical backgrounds respond to music. Hence, in the following paragraphs both are discussed.

The most outstanding example of a factor which frequently emerged was Evaluation. It was isolated in all of the seventeen factor analyses done in this study. But for one analysis, Evaluation always emerged as Factor I.⁴ Since in this one exception Evaluation's weight equalled that of the first factor, it can be said that the Evaluative response was emphasized in all of the listeners' factor structures. In three of the factor structures, Evaluation was not only emphasized, but also played a dominant role in the listeners' responses. Thus, everyone who participated as a subject in this study, regardless of his musical background, his familiarity with music, or the classical or popular nature of the music, seemed to feel that listening to music should involve evaluation or criticism.

A number of the scales loading high on these Evaluation factors were the same. For example, on every Evaluation factor the listeners considered the music's beauty and goodness. Other dimensions frequently coming out on this factor were pleasantness, melodiousness, valuableness, intimacy, sincerity, and order.

⁴This exception was the analysis of Group A's responses to the popular excerpts.

Such dimensions as strength, brightness, emotion, uniqueness, description, rhythm, and picturesque came out on Evaluation rather infrequently. The linkage patterns for the dimensions coming out on these Evaluation factors indicated that the music's beauty, goodness, pleasantness, and value tended to be seen as a function of its melodiousness, intimacy, sincerity, and order. For the subjects participating in this study, these were desirable qualities in the music. That they sought these characteristics in the music could be useful information for teachers of listening to music. It may be that listeners in general find such qualities desirable. By helping listeners to find these characteristics in musical selections, teachers may be able to contribute to the progress of their listeners.

Another factor frequently isolated in this study was Potency. Evidence that the listeners considered the music's strength was found both in separate Potency factors and in factors combining Potency with some other element, this generally being Activity. Ten instances of the former and nine of the latter were found in this study. Regardless of which way Potency was isolated, loudness was invariably a dimension of the factor involved. Thus, for all of the listeners, the music's dynamic level seemed to influence their decision about the music's strength. Loud music signified strength, whereas soft music signified a lack of strength. In some of the Potency factors

isolated, a second preconception was evident. This was that loud music signified complexity. This second preconception was found in at least one factor structure for each listening group. Its occurrence was not, however, as widespread as that involving Potency and loudness.

Although Activity was never isolated as a separate factor, it cannot be said that the listeners failed to consider this aspect. In every analysis done in this study, Activity was found in conjunction with some other element. Potency and/or Mood were generally the other components of these factors. The combining of Activity and Potency seemed to indicate that, for some of the listeners, loud music was viewed as being active. Conversely, soft music was viewed as being passive. The combining of Activity and Mood seemed to indicate that, for some of the listeners, the mood assigned to a selection was at least partly determined by the music's activity. Active music indicated a light, happy mood, and passive music indicated a serious, sad mood. Whether combined with Potency or Mood, the music's activity was indicated to the listeners by its tempo. A fast tempo signified activity; a slow tempo signified passivity.

Imagery is another example of a factor isolated in practically every analysis done in this study. However, on only five of the Imagery factors did the scale meaningful - meaningless load high. The emergence of this scale could be taken to indicate

that, for the listeners involved, the music's meaning was at least partly dependent upon the imagery they could discern in the music. It is interesting to note that in four of these five examples the responses of Group A were involved. This preconception may be one held by listeners with very limited musical backgrounds in general. It is also noteworthy that the same preconception emerged in Group C's responses to strange excerpts.

Comparison of the factors isolated in the analyses done in this study revealed that certain factors appeared rather infrequently. One example of this was the factor Simple - Complex. It occurred only in the responses of Groups B and C. For the members of Group B, two preconceptions were involved. They were that repetition in music made for simplicity, and that repetition and simplicity were both associated with the state of being commonplace. These same two preconceptions were also held by the listeners in Group C. In addition, Group C's listeners saw order as contributing to music's simplicity. Perhaps listeners like those in Group A could be helped in their listening through exploration of these ideas that repetition and order make for simplicity.

Another illustration of an infrequently occurring factor was Color. This factor was isolated in only three of the seventeen factor analyses done in this study. On all three occasions it was found in analyses involving the Group B listeners. Thus,

the factor Color was one peculiar to listeners in Group B. It appears that these listeners were very conscious of color in music, particularly for popular music and for music with which they were unfamiliar. One wonders if this is true of the majority of individuals with musical backgrounds similar to those of Group B's listeners.

Semantic Differential Test

The percentage of the total variance accounted for by the solutions to the seventeen factor analyses done in this study ranged from fifty-two per cent in Hypothesis III's two analyses to sixty-three per cent in the analysis of Group C's responses to the popular excerpts. Thus, each factor analytic solution accounted for over one-half the total variance.

In all but three of the analyses one or more unidentifiable factors were isolated. These three exceptions were the analyses for Group B's responses to all the excerpts, Group C's responses to all the excerpts, and Group C's responses to the classical excerpts. Because of the presence of these unidentifiable factors, the percentage of the total variance which could be explained in fourteen of the solutions was less than the percentage for the total variance accounted for by the solution. For these fourteen solutions, the percentage of the total variance which could be explained ranged from forty-three per cent to fifty-one percent. In only two

of these fourteen analyses could over half the total variance be explained. Thus, of the total seventeen factor analyses, only five provided an explanation for over fifty per cent of the total variance. Four of these analyses involved Group C's responses.

From the figures quoted above, it is obvious that the semantic differential test constructed by this investigator is in need of refinement. If the test could be made to account for a larger proportion of the total variance, it would be a more useful measurement instrument. It appears that the test in its present form failed to cover some of the listeners' responses to the music. Thus, it is suggested that the scope of the scales on the test be increased.

The test would have provided more information about the listeners' responses if unidentifiable factors had not been generated. Increasing the number of scales on the test may help to eliminate these vague factors. This step would not likely create a time problem. After the first excerpt, the subjects in this study were able to complete the test quite quickly. For most of the excerpts, they could have easily answered a longer test.

The solutions for Group C's responses can, in general, be said to have provided a fuller explanation of their responses than the solutions for either Group A's or Group B's responses. The solutions for Group A's responses can, in general, be said

to have provided the least complete explanations. Hence, it is suggested that the test in its present form may be most effective as a measurement instrument when administered to listeners having extensive musical backgrounds. If so, refinement of the test would involve improving its usefulness for listeners having minimal musical backgrounds.

When refining the test, it would perhaps be wise to revise the order in which the scales occur on the test. Some perhaps unwise choices were selected for the present test. For example, the sixth scale, yellow - blue, was followed by the mood scale, happy - sad. When the subjects' responses were factor analyzed, it was found that mood and color were frequently found in conjunction with each other. Perhaps the placement of the scales suggested such a relationship to the subjects. Another example of a perhaps unfortunate ordering of the scales occurred for numbers sixteen and seventeen. In this case, the scale serious - humorous was followed by the scale slow - fast. Once again, the listeners' factor structures revealed that mood and tempo were frequently related. That this relationship was perhaps suggested by the placement of the scales is a legitimate criticism. Hence, it is suggested that the test could be improved by a more careful ordering of the scales on it.

The first scale on the test, familiar - strange, was used to categorize the excerpts according to their familiarity.

The pairing of the term strange with familiar was perhaps an unfortunate choice. While the term strange can mean unfamiliar, it can also mean foreign or alien. Either interpretation by the subjects was possible. The latter interpretation would not have provided the information sought by this researcher. To eliminate this, it is suggested that the scale be changed to familiar - unfamiliar. It is further suggested that before administering this test, the purpose of this scale be explained to the subjects.

The test's reliability, as indicated by the test - retest method, was estimated to be .613. By calculating the reliability for a sample of five tests (r_{12}), and for the same sample of five tests with the scores on the retests having been increased or decreased one scale point (r_{14}), it was found that .613 was not significantly different from either r_{12} or r_{14} . Thus, the subjects' responses tended to be fairly stable. For those scales on which there was a difference between the scale point marked at the test session and the retest session, the change was most likely of the one point type.

IMPLICATIONS

The results obtained in this study indicate the following implications:

1. Listening to music may follow the stages in the three-fold cycle which Whitehead suggested for the

Rhythm of Education. If so, one can expect the responses of musically untrained individuals and musically well-trained individuals to appear to be highly similar, and the responses of moderately trained individuals to stand out as being different. Whitehead suggested that the difference between those individuals in the Stage of Romanticism and those individuals in the Stage of Generalization was that the former group lacks the understanding or comprehension possessed by the latter groups. This difference may exist between the responses of untrained listeners and well-trained listeners.

2. The classical or popular nature of music exerts little influence upon the responses of a listener having an extensive musical background or a moderate musical background. Listeners in both these categories tend to approach classical music and popular music in the same way.
3. The classical or popular nature of music does have an impact upon the responses of a listener having little or no musical background. This listener has different modes of responding for classical music and for popular music. Hence, he tends to approach these two types of music differently.

4. Familiarity of the music heard exerts little influence on the responses of a listener having a moderate musical background. This listener apparently does not have different modes of responding for familiar music and for strange music. Instead, he tends to approach these two types of music in basically the same way.
5. Familiarity of the music heard does have an impact upon the responses of a listener with an extensive musical background or with little or no musical background. A listener falling in either of these categories tends to approach familiar music and strange music differently.
6. A listener's musical background is of little consequence when he listens to music which he considers to be familiar. For this type of music, listeners' responses tend to converge.
7. A listener's musical background is important when he is presented with music which he considers to be strange. For this type of music, the responses of listeners tend to diverge according to their musical backgrounds. That is, the mode of responding to strange music and hence the way in which it is approached is related to the musical background of the

listener.

8. All listeners seem to search for beauty and goodness in music. For most listeners these two qualities exist in music which can also be described as melodious, intimate, and ordered.
9. When listening to music, most individuals are concerned about the music's strength or potency. Their decisions about this are strongly influenced by the music's dynamic level. Loudness signifies strength.
10. When listening to music, most individuals seem to consider the music's activity. This is indicated to them by the tempo of the selection. A fast tempo signifies activity.
11. For some listeners loud music signifies not only strength but also complexity.
12. For some listeners, the music's dynamic level functions as an indicator of the music's active or passive nature. Hence, loud music may signify activity.
13. Listeners having little or no musical background seem unaware that repetition and order in music make for simplicity. Only listeners with extensive musical backgrounds seem aware of this principle.
Listeners having moderate musical backgrounds are

to some extent aware that repetition decreases complexity.

SUGGESTIONS FOR FURTHER RESEARCH

In the section entitled the Semantic Differential Test, it was pointed out that the instrument used in this study was capable of providing worthwhile information about listeners' responses to music. It was also pointed out that the test was in need of refinement. This step is essential if even more information about listeners' responses to music is to be obtained. Hence, one of the directions of future research could be improvement of the test instrument constructed by the investigator for this study.

The present study investigated the influence of musical background, the classical or popular nature of the music, and the music's familiarity upon the listeners' responses. When only the influence of extent of musical background was considered, the findings were inconclusive. Further studies investigating this same relationship need to be undertaken. In these studies, it may prove valuable to establish listening groups in which the differences among the listeners are greater than they were in this study.

In the present investigation, the classical excerpts were all selected from orchestral music written in the period extending from 1750 to 1900. Hence, examples of neither Baroque music

nor of Contemporary music were included on the test. The eight classical excerpts had to represent one hundred and fifty years of music's history. Thus, both changing the period in which the music was composed and narrowing down the musical period which the excerpts represent would provide interesting variations of the present study.

In this study, the method of determining the listeners' familiarity with the musical excerpts can be described as somewhat unsatisfactory. A study in which the method of determining this was improved would be useful. For example, one in which the subjects were familiarized with certain selections through repetition of them over a period of time is feasible.

Music may be classified on many other criteria besides its classical or popular nature, or the listeners' degree of familiarity with it. Examples of other classifications are homophonic and polyphonic music, orchestral and chamber music, absolute and program music, vocal and instrumental music, and contemporary and non-contemporary music. Research in which these classifications were involved would be of value. It may be possible to design studies which would follow up Getz's investigation in which the music was classified according to the number of melodic repetitions within a piece of unfamiliar serious music. Another follow up of Getz's work would be to investigate the relationship between the listeners' responses

to music and the tempo of the musical selections.

Another direction which future research could take would be to investigate the influence of a program on the responses of listeners with a given musical background. Likewise, the influence of the presence of a performing group and a conductor on listeners having a particular musical background might also be investigated.

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APPENDIX A SEMANTIC DIFFERENTIAL TEST

[illegible]

INSTRUCTIONS FOR SEMANTIC DIFFERENTIAL TEST

We want you to help us today by telling us how you respond to selected excerpts of music. A list of adjectives commonly used to describe reactions to music has been developed. These have been arranged in pairs on an IBM answer sheet. An example is shown below:

Happy	=====	=====	=====	=====	=====	Sad
	1	2	3	4	5	

Moving from left to right, these 5 spaces have the following meanings:

- 1 - very happy
- 2 - happy
- 3 - neither happy nor sad, or both
equally
- 4 - sad
- 5 - very sad

If your reaction to a selected excerpt was very happy, you should blacken in space 1 to indicate this. If your reaction to a selected excerpt was very sad, you should blacken in space 5 to indicate this. If you feel that neither term applies to your reaction or that both apply equally, you should blacken in space 3 to indicate this.

In all, you will hear 14 musical excerpts, each of which will be approximately 4 minutes in length. Between each excerpt there will be a break of approximately 30 seconds. You are asked to describe your reaction to each excerpt by using the 34 pairs of

adjectives. It is suggested that you hear a portion of the excerpts before strating to complete the form. Do not, however, wait until the excerpt is completely finished before starting. Indicate your first or initial reaction to the music.

Be certain that you blacken in ONLY ONE SPACE FOR EACH PAIR OF ADJECTIVES. Be certain to provide an answer for each pair of adjectives: DO NOT OMIT ANY. If you wish to change an answer, be certain to completely erase the first mark.

You should have a total of 14 answer sheets, one for each musical excerpt. Use each answer sheet only once. Hence, during the break, be certain to turn to the next answer sheet so you are ready to go on. We are interested in your response to the music. Please do not look at anyone else's paper or make any remarks or noises that might disturb others.

APPENDIX B QUESTIONNAIRE ON MUSICAL BACKGROUND

Musical Background		
Instrument	Years of Study	Years of Performance
1. Piano		
2. Violin		
3. Viola		
4. Cello		
5. Double Bass		
6. Trumpet		
7. Trombone		
8. Saxophone		
9. Clarinet		
10. Flute		
11. Piccolo		
12. Harp		
13. Organ		
14. Voice		
15. Other		

E. a) Indicate the type or types of theoretical musical instruction which you have received by placing an X in front of the appropriate category or categories.

- ☐ 1. private lessons in musical theory
- ☐ 2. self-instruction in musical theory
- ☐ 3. music courses at the university level
- ☐ 4. theoretical instruction received as part of practical instruction
- ☐ 5. other (specify) _____

b) Complete the following chart to indicate the kind and amount of theoretical training you have received. If you have not studied a particular theoretical subject, write N.A. after its name in the column labelled Length of Study in Years.

Name of Subject	Length of Study in Years	Last Exam in Subject (Grade)	Institution With Which Took Exam
rudiments	_____	_____	_____
harmony	_____	_____	_____
counterpoint	_____	_____	_____
form	_____	_____	_____
history	_____	_____	_____
orchestration	_____	_____	_____
arranging	_____	_____	_____
composition	_____	_____	_____
pedagogy	_____	_____	_____
other (specify) _____	_____	_____	_____

F. Did you receive musical instruction in the elementary school, that is, in grades one to six? ____yes; ____no.

G. Indicate when you received the music instruction noted in questions D, E, and F by placing an X in front of the appropriate age category or categories.

- ☐ 1. 5 - 11 inclusive
- ☐ 2. 12 - 18 inclusive
- ☐ 3. 19 - 25 inclusive
- ☐ 4. 26 - 32 inclusive
- ☐ 5. 33 - 39 inclusive
- ☐ 6. 40 - 46 inclusive
- ☐ 7. 47 & over

- H. Complete the following chart to indicate the amount of experience you have had performing in groups. If you have not performed in a particular type of organization, write N.A. after its name in the column labelled Length of Time Performed in Organization (Years).

Type of Organization	Length of Time Performed in Organization (Years)
band (concert, marching, stage, brass, German)	
string orchestra	
symphony orchestra	
chamber group (string quartet, wind quartet, etc.)	
choir	
folk-singing ensemble	
dance band	
other (specify) _____	

- I. Complete the following chart to indicate the type and amount of teaching experience you have had in music. If you have not had a particular type of experience, write N.A. after its name in the column labelled Length of Time Taught (Years).

Type of Concert	Length of Time Taught (Years)
private instruction - instrumental or vocal	
private instruction - theory	
group instruction - instrumental	
conductor of a performing group (band, choir, etc.)	
music teacher in the school	
other (specify) _____	

- J. Indicate on the following chart the type or types of concerts you attend and the frequency with which you attend them. Use the following symbols:

- 1 - never attend this type of concert
- 2 - attend this type of concert infrequently
- 3 - attend this type of concert whenever possible
- 4 - have seasonal membership for this type of concert

Type of Concert	Frequency Attend
concerts of jazz music	_____
concerts of folk music	_____
concerts of country and western music	_____
concerts of popular music	_____
other (specify) _____	_____

K. Indicate the type of musical program you prefer to listen to on the radio and TV by placing an X in front of its name. Mark only ONE category.

- ____ 1. jazz music
- ____ 2. folk-song music
- ____ 3. country and western music
- ____ 4. popular music
- ____ 5. classical music
- ____ 6. other (specify) _____

L. a) If you own TWENTY OR MORE records, indicate the type or types of records you have represented in your collection by placing an X in front of the appropriate category or categories.

- ____ 1. jazz music
- ____ 2. folk-song music
- ____ 3. country and western music
- ____ 4. popular music
- ____ 5. classical music
- ____ 6. other (specify) _____

b) Do you own a far greater number of records in any one category than the others? ____yes; ____no.

If yes, name the category _____








M. Have you taken university music courses involving a listening laboratory? ____yes; ____no.

If yes, indicate the number of these courses you have taken

APPENDIX C MUSICAL EXCERPTS

TABLE XLVII

MUSICAL EXCERPTS ON TAPE I^{*}

Composer	Name of Composition	Date Selection Written	Playing Time	M.M. Marking	Performed By
Haydn	Symphony No. 94 (Surprise) - second movement	1791	3'50"	 = 112	Philharmonia Hungarica - Anatal Dorati
Newell - Ortolani	More (Theme from Mondo Cane)	1963	3'55"	 = 126	Boston Pops - Arthur Fiedler
Franck	Symphony in D Minor - third movement	1888	5'10"	 = 120	New Philharmonia Orchestra - Otto Klemperer
Wagner	Overture to Die Meistersinger von Nurnberg	1867	4'00"	 = 112	Columbia Symphony Orche- stra - Bruno Walter
Texidor	Amparito Roca (Spanish March)	**	2'35"	 = 152	Boston Pops - Arthur Fiedler
Lennon - McCartney	I Want to Hold Your Hand	**	2'30"	 = 144	Boston Pops - Arthur Fiedler
Brahms	Symphony No. 2 - fourth movement	1877	3'45"	 = 120	New York Philharmonic - Leonard Bernstein

* Excerpts are listed in the order in which they were on the tape.

** Dates for these selections could not be found.

TABLE XLVIII

MUSICAL EXCERPTS ON TAPE II^{*}

Composer	Date Selection Written	Playing Time	M.M. Marking	
Beethoven	1808	4'10"	$\text{♩} = 120$	Philharmonia Orchestra - Herbert van Karajan
Anderson	**	3'08"	$\text{♩} = 138$	Boston Pops - Arthur Fiedler
Mozart	1788	4'00"	$\text{♩} = 144$	Columbia Symphony Orches- tra - Bruno Walter
Lennon - McCartney	**	2'20"	$\text{♩} = 132$	Boston Pops - Arthur Fiedler
Tschaikowsky	1877	4'25"	$\text{♩} = 152$	L'Orchestra do la Suisse Romande - Robert Denzler
Berlioz	1830	4'25"	$\text{♩} = 92$	New York Philharmonic - Leonard Bernstein
	**	3'30"	$\text{♩} = 144$	One Hundred and One Strings

* Excerpts are listed in the order in which they were on the tape.

** Dates for these selections could not be found.

APPENDIX D FACTOR MATCHES FOR THE THREE GROUPS
RESPONSES TO THE CLASSICAL EXCERPTS

TABLE XLIX

FACTOR MATCH FOR GROUP A'S CLASSICAL WITH GROUP B'S CLASSICAL

Factors	Group B - Classical						
	I	II	III	IV	V	VI	VII
I	-.9466	-.2486	-.0559	-.0407	.0036	-.1782	-.0743
II	.4556	-.2924	.0519	.5936	.0569	-.5315	-.2572
III	.0269	-.1223	.9762	-.0282	.0044	-.0884	.1509
IV	.0490	.8563	-.4036	-.2098	.1257	-.1847	.0861
V	-.1021	-.6850	-.3465	.1238	.3838	.0502	.4850
VI	.1565	-.0151	.0727	.6505	.3500	.2883	.5841
VII	.3116	.0668	-.0477	-.0797	-.5186	.6605	.4295

TABLE L
 FACTOR MATCH FOR GROUP A'S CLASSICAL WITH GROUP C'S CLASSICAL

Factors	Group C - Classical				
	I	II	III	IV	V
I	-.9197	-.1108	-.3592	.0097	.1130
II	.4745	.0177	-.2201	-.0778	.8485
III	.1393	.9044	-.3087	.2215	.1354
Group A - Classical IV	-.1128	-.3651	.6560	.6468	.0722
V	.2989	-.3900	-.2723	-.8176	-.1262
VI	.1092	-.2526	-.3093	-.4773	.7748
VII	-.1488	.3362	.8827	-.2927	.0088

TABLE LI
 FACTOR MATCH FOR GROUP B'S CLASSICAL WITH GROUP C'S CLASSICAL

Factors	Group C - Classical				
	I	II	III	IV	V
I	.9095	.2165	.2805	-.1138	.1854
II	-.1397	-.1038	.6195	.7630	.0615
III	.1531	.8915	-.2748	.3233	.0412
Group B - Classical IV	.3068	-.4001	-.2013	-.1293	.8298
V	.3752	-.5324	-.6115	-.3070	.3280
VI	-.2654	.2003	.7231	-.4182	-.4379
VII	.2820	-.2641	.3749	-.8620	-.1671

APPENDIX E FACTOR MATCHES FOR THE THREE GROUPS
RESPONSES TO THE POPULAR EXCERPTS

TABLE LII
FACTOR MATCH FOR GROUP A'S POPULAR WITH GROUP B'S POPULAR

Factors	Group B - Popular					
	I	II	III	IV	V	VI
I	-.0103	.7276	-.0383	-.6490	.1652	-.1433
II	.8370	.4275	.1919	.0242	.2062	.1916
III	.0548	.7517	-.1781	.2510	-.5133	.2716
IV	.1236	-.0625	.7158	.1671	.6607	-.0631
V	.8688	.1788	.3922	-.1215	-.1064	-.1826
VI	-.0559	-.0855	-.3160	-.1156	.3297	.8761
VII	-.3827	.7120	-.5354	.0715	-.0038	-.2343
VIII	.2965	-.3001	.3626	.8119	-.1466	-.0994

Group A -
Popular

TABLE LIII
FACTOR MATCH FOR GROUP A'S POPULAR WITH GROUP C'S POPULAR

Factors	Group C - Popular						
	I	II	III	IV	V	VI	VII
I	-.0068	.9958	.0493	.0115	-.0500	.0251	.0512
II	.9043	.0963	.1429	.0306	-.0805	-.3664	.1045
III	-.1515	.0583	.9193	-.0577	.2237	.0163	-.2738
IV	.3397	.1607	-.2148	.8813	-.0053	.1398	.1280
Group A - Popular V	.8909	.0805	-.0471	.1122	-.1551	.1918	-.3524
VI	-.2127	.1343	-.1073	-.2278	.8910	-.2750	.0618
VII	-.0144	.2624	.3642	-.3997	-.1632	.7774	-.0872
VIII	.1501	-.2880	-.1296	.3125	.6225	.0403	-.6253

TABLE LIV
FACTOR MATCH FOR GROUP C'S POPULAR WITH GROUP B'S POPULAR

Factors	Group B - Popular					
	I	II	III	IV	V	VI
I	.9243	.2221	.2828	.1101	.0563	.0321
II	.0404	.6580	-.1150	-.7113	.1994	-.0803
III	.1550	.8317	-.0362	.2321	-.4576	.1406
IV	.1135	.0270	.8558	.1565	.2892	-.3819
V	.2626	-.2371	-.4175	.0968	-.0534	.8296
VI	-.5575	.4249	.0684	.2314	-.1796	-.6466
VII	-.3425	-.5562	-.3282	-.5052	.4235	-.1761

Group C -
Popular

APPENDIX F FACTOR MATCHES FOR THE THREE GROUPS RESPONSES
TO FAMILIAR EXCERPTS

TABLE LV
 FACTOR MATCH FOR GROUP A'S FAMILIAR WITH GROUP B'S FAMILIAR

Factors	Group B - Familiar				
	I	II	III	IV	V
I	.9356	.2558	.0546	-.1040	.2131
II	.0712	.2449	.9637	.0494	.0622
III	.6004	-.5624	.0052	.5622	-.0841
Group A - Familiar IV	.1026	.9719	.0276	-.1973	-.0718
V	-.4100	.3522	.5120	.0190	.6673
VI	.2616	-.2966	-.0480	-.9144	.0717
VII	.2699	.1141	.6830	.1190	-.6584

TABLE LVI
 FACTOR MATCH FOR GROUP A'S FAMILIAR WITH GROUP C'S FAMILIAR

Factors	Group C - Familiar				
	I	II	III	IV	V
I	.8985	.1534	.0262	-.0779	.3264
II	.0957	.1665	-.9812	.0082	-.0125
III	.3606	-.1988	-.1286	.8753	-.1364
IV	-.3180	.9148	.1835	-.0369	.0775
V	-.2027	.6423	-.3832	-.2677	-.5537
VI	-.1780	-.0413	-.0946	-.1025	.9674
VII	.3266	.3840	-.2295	.0971	-.3238

Group A -
 Familiar

TABLE LVII

FACTOR MATCH FOR GROUP C'S FAMILIAR WITH GROUP B'S FAMILIAR

Factors	Group B - Familiar				
	I	II	III	IV	V
I	.9816	.0885	.0159	.1335	-.1029
II	.2997	.9166	.2589	-.0528	.0118
III	.0803	.0114	-.9908	.0510	-.0952
Group C - Familiar IV	.5165	-.4583	.0329	.7032	.1616
V	.5401	-.1475	-.0516	-.7885	.2494
VI	-.2571	-.5833	-.0418	.7096	-.2973

APPENDIX G FACTOR MATCHES FOR THE THREE GROUPS RESPONSES
TO STRANGE EXCERPTS

TABLE LVIII
 FACTOR MATCH FOR GROUP B'S STRANGE WITH GROUP A'S STRANGE

Factors	Group A - Strange						
	I	II	III	IV	V	VI	VII
I	-.8852	.3894	.1522	.0194	-.1626	-.1216	-.0003
II	.2481	.3050	.7496	-.1080	-.4802	.0712	.1904
III	.1763	-.0086	.4395	-.4900	.7021	.1386	.1530
IV	.1208	.5621	.4093	-.1770	.1075	.1555	.6594
V	-.1317	-.0901	.1194	.7845	.2283	.1681	.5142
VI	-.0156	.6478	-.0241	.0706	.2729	-.6815	-.1889
VII	-.2432	.3994	-.0176	.5756	.0284	.1680	-.6485
VIII	.3892	-.3198	.0902	.2917	-.4359	-.6770	.0689

Group B -
 Strange

TABLE LIX
 FACTOR MATCH FOR GROUP A'S STRANGE WITH GROUP C'S STRANGE

Factors	Group C - Strange						
	I	II	III	IV	V	VI	VII
I	-.6206	-.2876	-.1241	-.0550	.5074	.0782	.5001
II	.6085	-.1186	.7398	.1684	-.0011	.0358	-.1967
III	.3430	-.8206	.0298	-.2224	.3240	.2301	.0251
IV	.1214	.1778	.1631	.8871	-.2757	.1900	.1675
V	.0346	.6118	-.0046	-.7742	.1190	-.1036	.0142
VI	-.1767	-.0712	-.0563	.1010	.0969	-.9675	-.0696
VII	-.1655	-.2941	.8360	.1514	-.4016	-.0547	.0044

TABLE LX

FACTOR MATCH FOR GROUP B'S STRANGE WITH GROUP C'S STRANGE

Factors	Group C - Strange						
	I	II	III	IV	V	VI	VII
I	.6729	-.0519	.3222	.0769	-.3969	.0295	-.5257
II	.1808	-.9777	-.0075	.0680	.0435	.0414	-.0565
III	.1659	-.1728	-.1642	.8901	.2884	-.1772	.0939
IV	.0813	.0180	.8764	.0025	.3907	.2581	.0751
V	.1195	-.1568	.0470	.4552	-.8514	-.1058	.1251
VI	.4757	.1044	.3477	-.0810	-.3310	.7215	.0721
VII	.7414	.2397	-.2154	.4737	.1804	-.0856	.2868
VIII	-.0249	-.1133	.1331	.3237	.2781	.6882	.5595

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